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THE UNIVERSITY OF ALBERTA

A FIELD INVESTIGATION OF CHILDREN'S CAUSAL ATTRIBUTIONS FOR SPORT OUTCOMES

©

BY

JUDY MAUREEN MONA SEFTON

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
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J.M. Sefton
(Student's signature)

3024 - 108 Street
(Student's permanent address)

Edmonton, Alberta, Canada

DATE: September 19, 1988

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "A Field Investigation of Children's Causal Attributions for Sport Outcomes" submitted by Judy Maureen Mona Sefton in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

Murray Smith
Co-Supervisor

Co-Supervisor

A. B. Nielsen

[illegible] ALDERMAN

Robert Fraser

Gary Smith

Glyn C Roberts
External Examiner

Date: September 19, 1988

DEDICATION

To Don Fry and Don Bailey, College of Physical Education, University of Saskatchewan. Who, so many years ago, gave me the support and encouragement necessary to pursue this degree.

ABSTRACT

This study examined the effects of age and sex on children's causal attributions for game outcomes over the first ten games of a youth sport season. In addition the effects of age and sex on the interrelationship between causal attributions for past outcomes and subsequent expectations for future performance success were examined. Six community league hockey and ringette teams, representing boys and girls between the ages of eight and fifteen years, participated in the study. Immediately following each game the children completed a brief questionnaire which included the questions, "Why do you think your team won/lost the game today?" and "If you played the same team again, do you think your team would win?" Responses to the first question were coded verbatim from the questionnaire, yielding 96 distinct causal attributions. These were subsequently rated three times, once for each of the causal dimensions, locus of causality, stability, and controllability. Responses to the second question were either "Yes" or "No". Separate loglinear analyses were completed for each of the first ten games, however, due to low cell frequencies, contingency tables were used extensively to test the hypotheses. Following wins both younger and older females and younger males gave predominantly immediate effort attributions, while older males gave predominantly typical effort attributions. Following losses the younger females gave predominantly mood-type attributions, while the older females gave predominantly immediate effort and mood-type attributions. Both younger and older males gave predominantly immediate effort attributions following losses. Regardless of the stable/unstable nature of causal attributions following a win, both younger and older males and females had high expectations for future success. Following a loss, unstable attributions led to higher expectations for future success than stable attributions for both younger and older males and females. The results of this study have revealed an apparent link between stable attributions following losses and lower expectancies for future performance success. This season-long field study revealed that attributions made by young athletes are relatively stable over a ten game span. The addition of the controllability dimension greatly reduced the number of ability-type attributions given by the young athletes.

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CHAPTER 1

INTRODUCTION

Research conducted on a variety of activities in achievement contexts has indicated that the cognitive attributions which individuals make for different outcomes influence their affective feelings toward and future expectations of success in those achievement contexts (Weiner, 1974, 1985). This information has been applied to a sport context to suggest that the causal attributions which one makes for a sport outcome will influence one's satisfaction with the sport experience and predisposition to continue participating in that sport (Roberts, 1984). Although considerable research with adults has indicated the utility of Weiner's attributional model of achievement motivation (Weiner, 1974, 1979, 1985), questions remain as to whether it is directly applicable to children, whether boys and girls make similar attributions, and whether these attributions have similar resultant consequences for different groups (Whitley & Frieze, 1985).

As early sport experiences are one of the important factors influencing later sport and physical activity involvement (Roberts, 1980), there are long-term consequences to understanding what leads to positive experiences in youth sports. In view of the increasing evidence that children are not simply "little adults"

(Gould, 1982; Roberts, 1980), it is important that findings from adult studies not simply be generalized to children but that research be conducted from a developmental perspective to take into account varying cognitive abilities at different age levels (Kun, 1977; Weiss & Bredemeier, 1983). Further, as youth sport programs for young girls become more prevalent (Martens, 1986; Valeriorte & Hansen, 1986), there is a greater need for research on what affects girls' sport experiences. As with generalizations across age levels, it is highly questionable whether the findings from studies on young boy's sports can be generalized to girl's youth sports.

A majority of the studies that have examined childrens' causal attributions in achievement settings have used Weiner's original theoretical model (Weiner, Frieze, Reed, Rest & Rosenbaum, 1972). Weiner (1979) has since provided a revised model that attempts to alleviate some of the problems encountered with the earlier model. To date only four studies have used Weiner's revised three-dimensional model for addressing causal attributions following sport outcomes (Gill, Ruder & Gross, 1982; Mark, Mutrie, Brooks & Harris; 1984; McAuley & Gross, 1983; Riordan, Thomas & James, 1985), and all of these have been restricted to college-age athletes. This study utilized Weiner's revised three-dimensional model to add insight into its utility with young athletes. Comparisons were made between results using this new model and those based upon Weiner's original two-dimensional model. These comparisons studied the importance of the perception of controllability to young athletes. As well, this study provided information pertaining to Weiner's postulation that expectations about future success and failure in an achievement context are linked to stability attributions (Weiner, 1979; 1984). Previous studies have supported this assumption with adults (Valle, 1974; Valle & Frieze, 1976; Weiner, Nierenberg & Goldstein, 1976). The question remains, however, whether this locus of stability-expectation link exists for youth sport participants.

This research provides increased understanding of how young athletes, both boys and girls, attribute causes for their sport outcomes and how these attributions affect their expectations for future performance. A unique feature of this research is its season-long perspective, examining how young athletes attribute cause for outcomes over a series of games.

Statement of the Problem

One purpose of this study was to examine the effects of age and sex upon children's causal attributions for game outcomes over the first ten games of a youth sport season. As part of this examination, the utility of

Weiner's revised three-dimensional model of achievement for extending understanding of children's causal attributions beyond the original two-dimensional model was investigated. A secondary purpose was to examine the effect of age and sex on the interrelationship between causal attributions for past outcomes and subsequent expectations for success in future performances.

Hypotheses

A number of reasons made it very difficult to formulate specific hypotheses for this study. First, all of the previous attribution studies conducted in youth sport settings have utilized Weiner's original two-dimensional rather than the modified three-dimensional model, which was adopted for use in this study. Second, with the exception of only two studies (i.e., Kimiecik & Duda, 1985; Roberts, Kleiber & Duda, 1981), all attribution research using young athletes incorporated forced-choice response formats requiring the athletes to rate the importance to game outcome of the specific attributional elements of ability, effort, task difficulty, and luck. Based on the recommendations of a number of researchers, this study utilized an open-ended format and focused on the dimensional properties of the attributions rather than the attributions themselves. Third, only two studies have compared both age and sex patterns in the attributional responses of young athletes, and these studies both utilized the forced-choice response format explained previously. Thus, no previous research is directly comparable to the present study investigating age and sex attributional patterns in young athletes using an open-ended format. As well, no previous studies have examined the relationship between the stability of young athlete's causal attributions for game outcome and their expectations for success in future games, which is the second purpose of the current research. As a result of the lack of directly related research, the following hypotheses were formulated largely on the basis of extrapolation from research on children in non-sport achievement contexts, research on children in sport contexts (that have utilized Weiner's two-dimensional model), research on adults in sport contexts and the general non-sport adult attribution research. The following sections present hypotheses pertaining to age and sex effects upon causal attributions for sport outcomes, and hypotheses pertaining to the relationship of causal attributions for subsequent performance expectancies.

Causal Attributions - Age X Sex Interaction Effects

It was hypothesized that there would be no sex differences in the causal attributions given for winning and losing by the younger children. More specifically:

1. There would be no sex differences in the causal attributions given for a team win by younger boys and younger girls (Bird & Williams, 1980; Daughdrill, 1978; Roberts et al., 1981; Scanlan & Passer, 1980a, 1980b).

2. There would be no sex differences in the causal attributions given for a team loss by younger boys and younger girls (Bird & Williams, 1980; Daughdrill, 1978; Roberts et al., 1981; Scanlan & Passer, 1980a, 1980b).

It was hypothesized that sex differences would be evident in the causal attributions given for winning and losing by the older children. More specifically:

3. Older boys would attribute a team win more to internal, stable attributions (e.g., ability) than would older girls (Daughdrill, 1978; Mark, Mutrie, Brooks & Harris, 1984).

4. Older girls would attribute a team win more to external, unstable attributions (e.g., luck) than would older boys (Bird & Williams, 1980; Daughdrill, 1978).

5. Older boys would attribute a team loss more to external, stable attributions (e.g., task difficulty) than would older girls (Daughdrill, 1978; Spink, 1978).

6. Older girls would attribute a team loss more to external, unstable attributions (e.g., luck) than would older boys (Riordan et al., 1985).

Causal Attributions and Expectations for Future Performance

It was hypothesized that there would be a relationship between causal attributions to the locus of stability dimension and expectations for future success. More specifically:

7. There would be a systematic relationship between the stable-unstable nature of causal attributions given by both younger and older children after winning a competitive sport contest and their stated expectations for future performances. It was predicted that both the younger and older children who attribute a win to unstable causes (e.g., luck, effort) would have lower expectancies for future success than would children who attribute a win to stable causes (e.g., ability, task difficulty) (Frieze, 1981; Nesdale & Pope, 1985; Parsons & Ruble, 1977).

8. There would be a systematic relationship between the stable-unstable nature of causal attributions given by both younger and older children after losing a sport contest and their stated expectations for future performance. Both younger and older children who attribute a loss to stable attributions (e.g., low ability, task difficulty) would have lower expectancies for future success than older children who attribute a loss to unstable causes (e.g., luck, effort) (Daughdrill,

1978; Frieze, 1981; Nesdale & Pope, 1985; Parsons & Ruble, 1977).

Justification

There are many serious deficiencies and voids in the literature on achievement attributions within a sport context. Many authors (Kimiecik & Duda, 1985; Rejeski & Brawley, 1983; Roberts, 1980; Weiss & Bredemeier, 1983) have identified the relative absence of developmental studies which would provide insight into the attributional patterns for achievement outcomes of both males and females across a variety of age levels. Knowledge of the development of causal attributions in non-sport related achievement contexts is quite well documented (Nicholls, 1978; Whiteley & Frieze, 1985), yet, to date, only two studies (Bird & Williams, 1980; Daughdrill, 1978) have attempted to examine causal attributions in young sport participants from a developmental perspective. The present study will contribute to this knowledge void by examining whether or not there are age and sex differences in the attributions that younger and older sport participants give.

There is also a serious deficiency in the literature with respect to the interrelationship between causal attributions given for a game outcome and the subsequent expectations for future performance in young sport participants (Bukowski & Moore, 1980; Roberts, 1980). In non-sport achievement contexts several authors (Abramson, Garber & Seligman, 1980; Dweck & Goetz, 1983; Fincham & Cain, 1986) have noted that understanding childrens' attributions for success/failure may have very important implications for understanding their behavior in achievement settings, mainly because the attributions may influence the childrens' self-concepts and their views of the social world. The present study examined whether there was any association between the causal attributions given by youth sport participants following a game and their subsequent expectations for future success against the same opponent.

To examine the impact of causal attributions for performance and subsequent expectations for future performance as well as how causal attributions develop in young athletes it was advisable to use a longitudinal research design (Carron & Spink, 1980; Weiss & Bredemeier, 1983). The present study implemented a field study design which examined the young athletes attributions and expectations over the first ten games of a youth sport season. The results offered new insight into the similarities and/or differences in the causal attributions children give for sport outcomes as the season progresses. This field study research on attributions and their relevance to subsequent performance expectancies not only provides new information in the sport context, but also provides a unique contribution in the general developmental literature.

In summary, the present research added to theoretical knowledge pertaining to: (a) age and sex differences in the attributional responses of youth sport participants; (b) whether or not attributions made to stable or unstable causes are linked to expectations for future success in youth sport participants; (c) the consistency or inconsistency in the way youth sport participants attribute cause over a series of games; and (d) the utility of using Weiner's revised three-dimensional model to analyze the attributional responses of youth sport participants.

Limitations

1. This was a field study and there was no control over the outcome of the games. Therefore, it was inevitable that there would be an unequal number of each age and sex group experiencing wins and losses per game.

2. There was an unequal number of subjects for each of the ten games analyzed. This was due to the fact that not all subjects attended every game.

3. No attribution fell within either the external, stable, controllable or the external, unstable, controllable categories, thus analysis of these categories was not possible. This resulted in using six,

rather than eight attribution categories for any subsequent analyses.

4. Very few attributions fell within the internal, stable, uncontrollable (e.g., ability) category, thus analysis of this category was severely curtailed.

5. Categorizing the open-ended attributions into one of six attribution categories resulted in large discrepancies in the frequencies in the cells. This greatly affected the loglinear analysis procedures and forced extensive reliance on the chi-square statistic.

6. Though every attempt was made to encourage parents and coaches not to interfere with the completion of the pre-game and post-game questionnaires, there may have been some instances over the course of the season where the parents and coaches did not comply with the request.

7. The classification of causal attributions into the dimensions was not totally objective and invariant. Despite attempts to make the classification procedure as objective as possible, some subjectivity remained and some personal interpretation was required in classifying the attributions.

Delimitations

1. The conclusions were based on a representative sample of six hockey and six ringette teams from the

Edmonton Minor Hockey and Edmonton Ringette Associations.

2. The male and female participants in this study did not engage in identical sports. Though the sports hockey and ringette appear very similar, differences found in the responses of the two sexes may to some extent reflect sport differences and not true sex differences.

3. The age groups of the children selected to participate in this study were not as diverse as is necessary to examine truly developmental differences in the boys and girls attributions for winning and losing. This study did not select subject's under the age of eight years because they would not be able to read and/or comprehend the questionnaires they were required to complete at the beginning and end of each game for the entire hockey/ringette season.

4. This study only collected the participants attributions for why their team won or lost the game. Caution is urged when comparing the results of the team attributions found in this study to those of individual sport athletes in previous studies.

5. This study was delimited to collecting attributions for team wins and losses. This implies an underlying assumption that a team win is synonymous with success and a team loss is synonymous with failure. Such may not be the case, as there is potential in a team sport context

that large individual variations may exist with respect to perceived personal success/failure in comparison to the perception of the team's success/failure.

Definition of Terms

Younger children - Children 8-11 years of age that comprised the younger girls and younger boys sample in this study.

Older children - Children 12-15 years of age that comprised the older girls and older boys sample in this study.

Youth sport - A general term which incompasses sport programs that are provided for children who are generally between the ages of six or seven to eighteen years.

Community-league team - Youth sport teams that are based in one of the many community associations within the City of Edmonton. These teams are administered and coached by volunteers from within the community and do not travel outside the City of Edmonton limits to play their league games.

Labels for the Three-Dimensional Model Attribution Categories

Internal, stable, uncontrollable (ISU) - Ability.
Internal, unstable, uncontrollable (IUU) - Mood.
Internal, stable, controllable (ISC) - Typical effort.

Internal, unstable, controllable (IUC) - Immediate effort.
External, stable, uncontrollable (ESU) - Task difficulty.
External, unstable, uncontrollable (EUU) - Luck.

Labels for the two-dimensional attribution catgories

Internal, stable - Ability.
Internal, unstable - Effort.
External, stable - Task difficulty.
External, unstable - Luck.

CHAPTER II

REVIEW OF THE LITERATURE

Weiner's Initial Model of Achievement Motivation

Weiner's model of achievement motivation was influenced by Heider's model for causal attribution and Rotter's locus of control work. Heider (1958) proposed that the three major causes of success and failure were ability, task difficulty, and effort; whereas, Rotter (1966) proposed a one-dimensional analysis of causes based on internal and external perceptions of control. Drawing upon these two lines of earlier research, Weiner proposed a two-dimensional taxonomy for understanding the relationships between a person's causal ascriptions for achievement outcomes and subsequent achievement behavior and/or achievement motivation (Shaw & Costanzo, 1982).

The two causal dimensions, proposed by Weiner, are control (which can be internal or external) and stability (which can be stable or unstable). The elements within each of these dimensions are the causal attributions that are used to explain a success or failure. Weiner suggested that ability and effort are important internal factors, whereas task difficulty and luck are important external factors (Weiner, 1974, p. 6). He added that ability and task difficulty are relatively stable factors; whereas, effort and luck are susceptible to variation and therefore may be considered to be relatively unstable. Combining these two dimensions results in four quadrants, within which each of the elements (causal attributions) may be placed. Table 1 presents Weiner's original classification scheme for achievement behavior.

The underlying premise of Weiner's conceptual approach to the study of motivation is that thought influences action (Roberts, 1978). People are assumed to attribute causes in a manner consistent with reality. That is, they analyze success and failure feedback in terms of the information it provides concerning the influences of different causal factors (Roberts, 1978). Weiner (1974) summarized that the mental or cognitive processes of motivation (e.g., information processing, judgement and decision making, inferences about cause, affect and actions) are the central concerns of his attributional analysis of behavior.

Weiner, Frieze, Kukla, Reed, Rest and Rosenbaum (1972) proposed that various pre-event conditions (e.g., level of achievement related needs, prior pattern and level of performance, and information of performance norms) determine whether success or failure are attributed to the perceived causal elements of ability, effort, task difficulty or luck. They added that differential attributions to the four elements for success or failure will effect the following: approach or

Table 1

Weiner's Original Model Identifying the Causes of Success and Failure in an Achievement Context

Locus of Stability	Locus of Control: Internal	Locus of Control: External
Stable	Ability	Task difficulty
Unstable	Effort	Luck

avoidance behavior; persistance or resignation in failure situations; selection of easy, moderate or difficult tasks; and the intensity with which an activity is performed.

The development of any theory or model generally requires minor changes as a result of substantive research evidence; Weiner's model was no exception. Critical reviews of his two-dimensional model prompted Weiner to re-evaluate and revise it (Falbo & Beck, 1979; Sohn, 1977). The major problem with the initial scheme was that it made no provisions for explaining whether the outcome of an event was or was not under the control of the individual (e.g., amount of effort expended versus rapid changes in weather conditions during a tennis match), and the effect that this control versus non-control situation may have on the individual's subsequent motivation. One other problem which had already been anticipated by Weiner, was that some of the causal attributions did not fit into the proposed dimensions. For example, factors such as mood, fatigue, illness and bias could be acceptable causes for particular achievement outcomes, but they did not fit readily into the original classification system (Falbo & Beck, 1979; Weiner, 1979). In addition, Weiner noted two further limitations. First, he suggested that perceived effort, though originally labelled as unstable, may also have stable properties. Second, the placing of ability and task difficulty in stable dimensions does not allow for improvement or learning to take place (Weiner, 1974, p.6). To account for these limitations Weiner proposed the revised classification scheme presented in Table 2.

Weiner's Revised Model of Achievement Motivation

The revised scheme included three dimensions of causality: locus, stability and control. Locus of causality refers to whether the success or failure is attributed to internal (within the person) or external (outside the person) reasons. Locus of causality was referred to as the locus of control dimension in Weiner's earlier proposal. The locus of stability dimension, which remained the same as in the original model, defines the causes of success and failure as having stable or unstable properties. The locus of control dimension in the revised scheme takes on a new meaning from that which was given this concept in the first model.- In an earlier reaction to the first model, Rosenbaum had suggested that some causes of behavior such as effort and teacher bias could be labelled as intentional, while others such as ability and task difficulty were unintentional (Weiner et al., 1972, p. 7). Weiner (1979), while agreeing with the importance of the new causal dimension proposed by Rosenbaum, disagreed with the proposed label and instead suggested that it should be called the control dimension. Weiner argued that if causal behavior is intentional, the

Table 2

Weiner's Revised Model Identifying the Causes of Success and Failure in an Achievement Context

	Locus of Causality			
	Internal		External	
Locus of Controllability	Stable	Unstable	Stable	Unstable
Uncontrollable	Ability	Mood	Task difficulty	Luck
Controllable	Typical effort	Immediate effort	Teacher bias	Unusual help from others

person is essentially in control of the behavior. Hence, Weiner changed the name of Rosenbaum's proposed dimension from intentionality to controllability. Although the new three-dimensional model alleviates some of the limitations of the two-dimensional model, there are ongoing problems with the new model. The two major concerns are whether external causes can be perceived as controllable, and whether the causal dimensions are truly independent (Weiner, 1979, 1983, 1984).

Much of Weiner's subsequent work has focused on how attributions to the three causal dimensions influence the participant's future expectations, emotions, and performance. Weiner postulates that expectations about future success and/or failure at a task are determined primarily by the locus of stability of one's causal attributions for success/failure on a previous performance (Weiner, 1984). For example, failure attributed to low ability or task difficulty (stable attributions) decreases the expectation of future success more than does failure attributed to bad luck, mood, or immediate effort (unstable attributions). When success is attributed to luck or immediate effort (unstable attributions) there is less expectancy for future success than when the successful outcome is attributed to superior ability or an easy task (stable attributions). Research evidence has supported these theoretical contentions (Valle & Frieze, 1976; Weiner, Nierenberg &

Goldstein, 1976).

The locus of causality dimension was initially thought to be primarily responsible for the affective (or emotional) consequences of success and failure. That is, emotional reactions would be maximized following internal attributions for success and failure, and minimized following external attributions (Weiner et al., 1972). This hypothesis that the locus of causality mediated affective reactions was not supported in later studies (Weiner, Russell & Lerman, 1978, 1979). These studies found that there were both distinct outcome-dependent, attribution-independent emotions and attribution-dependent emotions following achievement outcomes. Subsequently, Weiner reported that there are at least three sources of affect in achievement settings: emotions tied directly to outcome (feel good after a success and bad after a failure regardless of the given attributions); distinct emotions associated with outcomes attributed to external causes (e.g., gratitude/hostility given success/failure due to others; surprise given success/failure due to luck); emotions associated with self-esteem (e.g., competence, pride, shame) that are mediated by self-ascriptions (1979, p. 14). Therefore some emotions (affects) appear to be mediated by the locus of causality dimension, but in a more complex manner than was originally postulated. Subsequent research has attempted to examine the complex relationship between the locus of causality, locus of controllability, and emotion (Brown & Weiner, 1984; Weiner, 1985; Weiner & Handel, 1985).

The locus of control dimension has particular relevance for helping behaviors and the evaluations from others. For example, a hockey coach will tend not to help a player who intentionally does not try hard in practices or games; whereas he will spend time with a player who is expending extra effort. When failure is perceived as controllable, help is usually withheld as the person should be able to help themselves. Weiner (1979) postulated that secondary linkages exist between the stability and control dimensions. Fiske and Taylor (1984) concur with this perspective as they suggest that performance in an achievement task typically parallels and is jointly determined by expectations and affect. For example, a person may try harder when causes for a poor performance are attributed to unstable rather than stable factors and the resultant effect may be enhanced by affective feelings of embarassment or shame over the prior performance. Conversely, a person may quit trying if the expectations of future success are low (due to a series of stable attributions on previous performances) and feelings of hopelessness are high. Research has yet to examine the linkages between the causal dimensions. Determining how the dimensions are interrelated will further increase knowledge on the motivational consequences of attributions following performance in achievement settings.

Weiner summarized the basic assumptions underlying his model as follows: (a) people process and synthesize information to reach causal judgements; (b) causal judgements can be categorized into a few dimensions; (c) the dimensions influence expectancy shifts and affective reactions; (d) expectancy and affect determine goal-directed behavior; (e) presumed sequential links in the model are likely to be affected by the cognitive maturity of the actor (1974, p. 43). In his model, Weiner emphasized that motivation is not static but changes over time. He suggested that since children have limited information processing capabilities, they may think of only a few possible explanatory causes for a particular event outcome or behavioral action, and they may not be able to perceive the similarities and differences among the causes (1974, p.43). Weiner (1974) also noted that the link between causal judgements and expectancy shifts are likely weakly formed in children.

These assumptions have stimulated interest in examining developmental changes in the cognitive attributions given in achievement settings. Research completed on the development of cognitive attributions in young children is reviewed in the following section.

Developmental Changes in Attributional Reasoning

Nicholls (1978) examined the development of causal attributions for success and failure in children (ages 5-13 years). The young subjects viewed one of three different films that showed a pair of eight-year old children working on math problems. The films were 90 seconds long and portrayed one child working diligently for the entire 90 seconds, while the second child worked for 40 second and spent 50 seconds fiddling around with a pencil, eraser, ruler, etc. After viewing the film the subjects were told how many math problems were completed correctly by the children in the film. The subjects were then asked several questions pertaining to the effort exerted and the ability of the children in the film. He found that children went through four age-dependent levels of reasoning. Five to six year olds could not distinguish between the cause and effect of outcomes, but simply tended to focus on outcome and ignore effort and ability cues. Seven to nine year olds began to distinguish between cause and effect, but focused on outcome and effort as they believed that equal effort lead to equal outcome. Nine to eleven year olds recognized effort as necessary for success. This group also gave ability attributions, however, ability was only used to explain success when little effort was exerted. Twelve and thirteen year olds began to systematically distinguish between the concepts of ability and effort, and recognized outcome as being determined by both effort and ability. There was a sex difference in levels of reasoning about ability and effort. The girls were less represented than the boys at the highest level of reasoning (e.g., where effort and ability are clearly differentiated). It was not clear whether this finding reflected a sex difference in attributional bias or stereotyping of girls as less able.

In a subsequent study, Nicholls (1979) examined the relationship between where young children perceived their reading attainment to be compared to other children in their class, and their subsequent attributions for success and failure in school reading work. Generally, the younger children yielded few direct associations between their perceived reading attainment and the causal attributions for their success and failure in reading. That is, the distinctions between effort, ability, task difficulty, luck and reading attainment did not show up in the younger children's responses. This trend held consistently for all the girls in the six to ten year age group, but exceptions to it were evident in the boys results. That is, six year old boys who perceived their own reading attainment to be high attributed their reading success to high effort, while those six year old boys who perceived their reading attainment to be low attributed their reading success to luck. There were no distinct associations between reading attainment and attributions to failure with the six year old boys. The eight year old boys with high perceived reading attainment attributed their reading success to ability and had no distinct attributions after failure. The eight year old boys with low perceived reading attainment attributed reading failure to lack of ability but showed no distinct association after success, while the ten year old boys with high perceived reading attainment attributed their reading success to ability. The ten year old boys with low perceived reading attainment attributed their reading success to effort. Twelve year old boys and girls who perceived their own reading attainment to be high, attributed their reading success to ability, whereas those who perceived their own reading attainment to be low tended to attribute their reading success to effort and luck. With respect to failure, twelve year olds who perceived their own reading attainment to be low were more likely to attribute their reading failure to low ability and were less likely to attribute it to bad luck than were those who rated their own reading attainment as high.

Kun (1977) found that 5-6 year olds tended to perceive effort and ability to be positively correlated. That is, knowledge of high effort led to inferences of high ability, while knowledge of low effort led to inferences of low ability. There was a noticable shift to a distinction between effort and ability attributions by the age of ten. That is, perceptions of high effort investment for a given outcome led to low ability attributions, while low effort led to high ability attributions. No sex differences were found in this study.

Karabenick and Heller (1976) examined the age of onset of the compensatory relationship between effort and ability in subjectsranging from six to eighteen years of age. They found that regardless of sex, six year olds demonstrated some distinction of the inverse relationship between ability and effort. That is, when the subjects were told that the success of the people depicted in four hypothetical stories was accompanied by high ability, they decreased the effort attribution ratings for those people. The extent of the decrease in the effort ratings was greater for the older than the younger subjects. It was not until age eleven, though, that ability attributions increased significantly when the subjects were told the success of the people depicted in the four hypothetical stories was achieved with low effort. This signifies the emergence of the perception of an inverse relationship between effort and ability. In addition, it was noted that development of the inverse relationship with respect to inferring effort from ability and outcome occurs prior to the development of the inverse relationship inferring ability from effort and outcome information in children.

In another study which examined the onset of the inverse relationship between ability and effort attributions in kindergarten to college-age subjects, Surber (1980) found that college-age subjects were consistent in reporting the inverse relationship when inferring ability from effort and outcome information as well as when inferring effort from ability and outcome information. The six to nine year old subjects showed consistent use of inverse compensation when they were judging effort from ability and outcome information (i.e., high effort, low ability and low effort, high ability). However, this same group showed inconsistent use of inverse compensation when they judged ability from effort and outcome information (i.e., high ability, high effort and low ability, low effort). The author suggests that by kindergarten age, children are aware of the inverse relationship between ability and effort but they do not consistently apply their knowledge in judging these two variables. Sex differences were not examined.

Nicholls and Miller (1985) summarized that young children do not conceive of ability as a capacity that limits the effect of effort on performance. In fact, trying harder can, for them, be equivalent to being more able. Similarly, as the concept of luck develops with increased age, effort on tasks which demand only luck are increasingly seen as fruitless by children at increasing levels of cognitive functioning.

Ruble, Parsons & Ross (1976) completed two studies which examined children's (ages six to eleven) self-evaluative responses with respect to task outcome (success/failure) and task ease information. Ruble and associates were testing the Weiner et al. (1972) suggestion that self-evaluative responses are, in part, dependent upon the allocation of responsibility for success or failure on an achivement task. Both studies found that outcome (success/failure) had a strong and consistent effect on self-evaluations, especially for older children (ages ten to eleven). Children perceived themselves as happier and more able when they thought they had succeeded than when they had failed. Interestingly enough, effort ratings were unaffected by outcome information. Effort ratings were very high over all age groups, regardless of outcome. The authors suggest that the children had internal knowledge of how hard they tried and the outcome information they received from the experimenter was unimportant to the children's effort ratings.

Harari and Covington (1981) had students (Grade One to college age) evaluate the achievement behavior of hypothetical students differing in ability, effort expended and task outcome, both from a student and a teacher perspective. They found that from the student's perspective, ability was a highly valued attribute across all ages; whereas, effort was more highly valued by elementary school children than it was by high school and college age subjects. The authors suggested that the progressive depreciation of effort attributions over age groups was associated with the gradual development of the inverse compensation principle in older subjects (i.e., low effort expenditure implies high ability). High ability was a valued trait across all age groups.

Weisz (1980) studied the development of perceived contingency between outcome and personal attributions (e.g., the belief that differences in behavior such as level of effort or in personal characteristics such as intelligence will covary with level of outcome experienced) in kindergarten and fourth grade children. He used a clearly noncontingent card drawing task and found that kindergarten subjects predicted significantly higher winnings for children who were older, smarter and children who had practiced than for younger, less able and unpracticed children. Conversely, fourth-grade subjects attributed high or low winnings to bad luck, a clearly noncontingent attribution. Like the kindergarten subjects, the fourth-grade subjects predicted significantly higher winnings for children who tried harder than for those who did not. They also showed a slight tendency to predict some performance differences as a function of age, intelligence and practice.

In a subsequent study with six to fourteen year old children playing chance games at a state fair, Weisz (1981) found that such illusionary contingency diminishes considerably by adolescence. While six to eleven year old children regarded the outcomes of chance games to be controllable (e.g., most reported that the outcomes of their own performance were caused by skill-related factors while age, intelligence, effort and practice were used to account for other children's performance), eleven to fourteen year old children attributed their own successful performance to luck, and used less skill-related factors to account for the performance outcomes of others. Another interesting result was that children at both age levels who had won the prizes they wanted reported the outcome to be strongly affected by effort; whereas, those who failed to win the prize they desired did not. Weisz, Yeates, Robertson and Beckman (1982) summarized that illusionary contingency declines in intensity with development, but that even in adolescents and college-age subjects it may never completely disappear.

After reviewing the literature on the differentiation between ability and effort in children, Nicholls and Miller (1984) noted two major trends. First, for young children high effort implies or is viewed as being equivalent to high ability. For both older and younger children, effort may increase performance or learning, but for older children higher effort for the same outcome implies lower ability. Secondly, for younger children, having high or low ability does not mean having high or low capacity, while it does for older children. The meaning of ability as well as how it is inferred changes with age, as ability in comparison to effort is seen as more critical for high performance by older children than by younger children. Lack of ability is viewed as more crippling by older than younger children.

Summary

From the above review it appears that it is easier to infer effort, given ability and outcome information, than to infer ability, given effort and outcome information. This discrepancy may stem from the fact that effort is under volitional control whereas ability is not (Sedlack & Kurtz, 1981). Adjusting effort to compensate for ability on a task is quite common in personal experience, whereas the opposite circumstance is not possible. An alternate explanation is that people are very aware of their personal effort expenditures, but can only indirectly infer their own ability level. Kepka and Brickman (1971) propose that ability is assumed to be resistant to change and thus tends not to be used when explaining change. Finally, Kassin and Lepper (1984) suggest that the relative sophistication of children's responses in a given setting vary systematically as a function of the manner in which experimental stimuli are presented and children's responses are assessed.

Fincham (1983) noted that most of the research conducted in this area has avoided testing factual knowledge or learned responses by using tasks/materials that are novel and unfamiliar to young subjects. He suggested there are several dangers in using this type of methodology. First, the task may become so bewildering that it inhibits the young child from attending to the relevant stimuli. Second, what do the responses to the strange tasks really mean. Finally, the strange tasks may yield a false picture of the child's true capabilities. He concludes that investigating children's use of causal reasoning in naturalistic settings may give a more accurate picture of their ability than merely switching to more "familiar" tasks in a laboratory.

The results of the studies reviewed lend support to Weiner's suggestion that causal structures may shift as age increases. The evidence indicates that there is a developmental component that influences the attributions that children make for success and failure in an achievement setting. It should be noted, however, that the research reviewed was predominantly conducted in controlled laboratory settings with the results largely based on forced-choice responses to hypothetical outcomes. In their review of the sport attribution literature Rejeski and Brawley (1983) question the extent to which results based on role-play studies conducted in laboratory settings can be generalized to a field setting. For example, if there is no emotional and/or time commitment required of the subject (as in a laboratory setting), how can comparing lab results to results from a natural setting (where emotional and time investment are required) be justified? Marsh, Cairns, Relich, Barnes and Debus (1984) share similar concerns about laboratory versus natural setting attribution research. More research must be conducted to test this contention. The present study will test for the presence of developmental trends in the attributions children make in achievement settings under field conditions, by examining the causal attributions children (ages 8-15) give after winning and/or losing the first ten games in a competitive youth sport season.

Sex Comparisons in Attributional Reasoning

In attribution theory, behavior is assumed to be cognitively mediated and, therefore, developmental changes in the nature of cognitive mediational processes between performance outcomes of an individual and his/her subsequent achievement behaviors should mean changes in the nature of achievement motivation (Maehr & Nicholls, 1980). The first form of achievement behavior is characterized by striving to maintain a favorable perception of one's ability. That is, the goal of behavior is to maximize the subjective probability of attributing high ability to oneself (Maehr & Nicholls, 1980). The causal attributions for achievement outcomes are assumed to be effective prospectively in motivating an action and retrospectively in the process of evaluation. As indepedent variables, causal attributions have been shown to determine the amount of measured achievement motivation, its direction, and actual achievement behaviors (e.g., amount of effort or persistence).

Attribution theory has been advocated as an appropriate perspective for examining sex differences in achievement contexts. Lochel (1983) suggested that using an attributional approach to study achievement motivacion takes account of the individual's active effort to make sense of all the information he/she receives about sex differences from the outside world, and therefore, might provide a more specific and qualitative understanding of sex differences in achievement motivation and behavior than have previously employed global approaches. The attribution model is also useful for pointing out the immediate practical consequences of cognitions. That is, it allows for a distinction between advantageous and disadvantageous attributions in the context of sex differences. It has already been mentioned that there appears to be a developmental trend in the attributions given by children in achievement settings. However, is there a divergence or convergence in gender responses? Very little research has been conducted in this area.

Maehr and Nicholls (1980) emphasized that when comparing boys' and girls' achievement attributions researchers must be sensitive to the possibility that in many so-called achievement situations, boys and girls may have different goals. In effect, researchers must establish the goals of any behavior or the events of interest for each sex, before explanations for success and failure are compared. Maehr and Nicholls' rationale for emphasizing goal analysis is that success and failure are not objective events, rather they are psychological states dependent upon the perceived reasons for outcomes (1980, p.249).

Williams (1983) points out three major limitations, which are relevant to any study examining gender differences. First, judgements about the behaviors of a particular individual or individuals are only relevant to a given group (e.g., girls rated as aggressive in a nursery school are only aggressive as compared to other nursery school girls or to the rater's conception of what constitutes aggressiveness in girls). Second, it is dangerous to generalize results obtained from one sample or population to another (e.g., generalizations are only valid within certain contexts and under certain conditions). Third, given the differential maturation rate of boys and girls from birth through puberty, it is difficult to accurately interpret gender comparisons.

Lochel (1983) has provided an excellent review of sex differences in achievement motivation. She concluded, from her review of research on adults and children over the age of ten years, that the three main concepts used to describe females in achievement settings are (a) self-derogatory as opposed to self-enhancing attribution patterns, (b) learned helplessness, and (c) fear of success. In a subsequent laboratory study, which examined the way in which early sex differences in self-attributions for success and failure emerge, Lochel found that sex differences in achievement attributions already exist at four years of age. Specifically, it was found that girls showed a pattern of attributions which was clearly self-derogatory, and there was evidence of an attitude of learned helplessness in the use of three causal factors. The girls seemed to use attributions in such a way as to diminish the ambivalence that they feel toward taking personal responsibility for success (i.e., they tend to give more "I don't know" and/or no explanation for their success). These are disturbing results in that they suggest that by the time children enter school, biased attribution patterns may already be in place. Lochel suggested that the attributions given by girls as early as age four prevent the development of achievement motivation and confidence in their own ability, and do not prepare them for coping effectively with failure (1983, p.219). There is a need for more research in this area to substantiate or refute Lochel's contention.

Deaux (1976) offered an explanation for the sex differences found in success/failure attributions for achievement outcomes. She noted that people attribute causes to their own or someone else's behaviors by using two sources of information: the actual perceived behavior in a given situation and the expectancies concerning that behavior. Deaux viewed causal attributions as a match or mismatch between these two sets of information. Because behavioral expectancies for males and females appear to be based on sex role stereotypes, it is not too surprising that sex differences are found for attributions in achievement settings. For example, sex-role stereotype research indicates that males are expected to be competent, independent, competitive, objective, logical, ambitious and self-confident; whereas females are expected to be expressive, tactful, gentle, aware of others feelings and able to express tender feelings (Deaux, 1976, p.336).

Given these expectancy patterns it is not surprising that Deaux and Emswiller (1974) found that for a masculine labelled anagram task, males expected to be significantly more successful than did females. Men were more likely to attribute success on the task to ability than were women, while women who succeeded attributed their success to luck more often than did the males. Men who failed or performed poorly attributed the result to task difficulty; whereas, women attributed poor performance on the task to lack of ability. Differences in expectancy and attribution patterns were minimized but not reversed when the task was labelled feminine.

Summary

It should be noted that the results of these studies were based on limited samples, conducted under controlled laboratory conditions, wherein subjects responded to only one achievement-related situation. Will similar results be replicated under field conditions where subjects are asked to make causal attributions for achievement outcomes over an extended period of time? Furthermore, will the results of studies on older women be replicated with young girls in the sport context?

In order to test for the presence of sex differences in the attributions children make in achievement settings under field conditions, the present study examined the causal attributions children (ages 8-15) give after winning or losing each of the first ten games in a competitive youth sport season.

Expectancies and Causal Reasoning

Weiner et al. (1972) indicated that the importance of studying causal attributions is based on the premise that the attributions are related to a person's expectations about how he/she will do in the future, and to a person's affective response to the outcome of an achievement task. Weiner's model suggests that expectancies are influenced both by objective past history of outcomes and by one's subjective interpretation of those outcomes. Several studies, using adult subjects, have reported results supporting the prediction that changes in expectancy are related to the stability of the causal attribution made to explain the outcome (Frieze, 1981). That is, expectations of success are greater when the successful outcome is attributed more to stable factors (e.g., high ability or task ease) than unstable factors (e.g., luck, effort). Conversely, expectations of failure are greater when the unsuccessful outcome is attributed to low ability or task difficulty rather than bad luck or little effort (Nesdale & Pope, 1985). Further research is required to determine if this finding will also hold true for younger children.

Parsons and Ruble (1977) found that success and failure experiences had a more systematic effect on school age (six and one-half to eleven years) children's expectancies than on the expectancies of preschoolers (three and one-half to five years), and that older children consistently reported lower expectancies. In other words they found that the relationship between past experiences and subsequent expectancies did vary as a function of age. There was a general decline in expectancies with age. Preschool children (three and one-half to five years) did not use outcome feedback systematically in forming their expectancies, whereas older children (nine and one-half to eleven years) did tend to integrate the outcome of previous experiences into their predictions for future success/failure. There were no sex differences in expectancies for the three and one-half to five year old group. Boys and girls in the six and one-half to eight year old group started with equal expectancies, but girls expectations declined more in response to failure. Girls in the nine and one-half to eleven year old group started the task with lower expectancy levels than did the boys. Three possible explanations for the general decline in performance expectancies with age were given (Parsons & Ruble, 1977). First, since expectancies are related to the perception of one's own abilities, perhaps the older children's expectancies reflect a lower estimate of their own general abilities. Second, the decline in expectancies may reflect an increase in a child's response to failure with age, coupled with a decline in response to success. Third, older children may have learned that it is more self-protective and/or socially acceptable to express less rather than more certainty of success. In addition Parsons, Ruble, Hodges and Small (1976) suggest that until children have been in school for some time they are not aware of what their capabilities are and what realistic expectations might be. The sex differences in expectancies may simply reflect perceptions of appropriate sex roles.

Stipek and Hoffman (1980) found that predictions made by three and four year olds regarding their future performance were high and were not affected by success or failure on past trials. Conversely, these same children used information about the past performance of another child quite logically (e.g., lower expectations were expressed for another child who had previously failed than for one who had succeeded). Stipek and Hoffman (1980) suggested that these results imply that young children possess the cognitive skills required to process feedback about past performance and to apply the feedback in judgements about future performance. These youngsters, however, make greater use of negative outcome information in judging others than in judging themselves.

In a follow-up study Stipek, Roberts and Sanborn (1984) hypothesized that young children sometimes fail to differentiate their expectancies from their desires, that is, they expect to achieve what they wish to achieve. They found that when young (four year old) children's attention is directed to their past performance outcomes, they do not predict their future performance solely on the basis of their desires; rather, they appear to adjust their future expectations to reflect past performance information. Stipek et al. (1984) concluded that expectancies and motivation are strongly related and that children's typical unrealistic optimism is easily modified when they are made aware of past performances.

Nesdale and Pope (1985) examined young (four to seven years) childrens' causal attributions for success and failure after completing two skill-related tasks and assessed their performance expectations for subsequent tasks. They found that regardless of age and sex, the children attributed both success and failure to the relative difficulty of the task and their expectations were affected by the pattern of previous success and failure. Regardless of age and sex, subjects who succeeded on two tasks had higher expectations than those subjects who succeeded on the first task and failed on the second. The success/failure group had higher expectations than those who consistently failed. These results suggest that even at four years of age both boys and girls report expectations similar to those of older children. In addition, these expectations conformed to their previous outcomes (i.e., those who consistently succeeded expected to succeed again; those who consistently failed did not expect to do well; expectations of those who failed, then succeeded, increased; expectations of those who succeeded, then failed, decreased). The results of this study show that children's expectancies appear to depend upon the outcome (i.e., success or failure) of previous tasks.

Summary

In total the results of the preceding studies suggest that young children tend to view their ability as being extremely high, and tend to hold and maintain high expectancies unless they are reminded of past outcomes. In addition, expectations are related to the outcome (i.e., success or failure) of previous tasks. It is interesting to note, however, that all the research completed on the interrelationship of attributions and expectancy has been over the short term. Will similar results be replicated if children are followed for an entire competitive season, where success and failure cannot be manipulated by some external means? It is also rather surprising that, to date, no research has examined the interrelationship between attributions, expectations and behavior in sport settings (Rejeski & Brawley, 1983). For example, if children attribute a loss to internal, stable and uncontrollable causes (e.g., personal ability) or to external, stable, and uncontrollable causes (e.g., abilities of opponents) will there be any hope for future success? Conversely, if children attribute a loss to internal, unstable and controllable (e.g., immediate effort) or external, unstable, and uncontrollable causes (e.g., luck), will hope for future success be increased? Attempting to answer these questions will provide information relevant to Weiner's premise that the stability of causal attributions are related to a person's expectations about how they will perform in the future.

In order to test for the relationship between causal attributions and the resultant expectancy for future performance in children, the present study examined the causal attributions children (ages 8-15) give after winning and/or losing the first ten games in a competitive youth sports season.

Causal Attributions following Sport Outcomes

Since the mid-seventies numerous studies, conducted in both laboratory and field settings, have addressed the causal attributions given by athletes following sport outcomes. The following section will review the results of those studies by initially examining those conducted under laboratory settings, followed by those field studies which focused on team sports, and finally those studies which concerned themselves with individual sports. It should be noted that this section will focus only on studies using college-age or older athletes. Studies of the causal attributions of young sport participants will be reviewed in the next section.

Iso-Ahola and Roberts (1977) studied the causal attributions for success and failure given by 80 male undergraduates who had just completed a motor maze task. They found that the subjects made more stable (i.e., ability, task difficulty) than unstable (i.e., effort, luck) and more internal (i.e., ability, effort) than external (i.e., luck, task difficulty) attributions following success or failure on the motor maze task. The subjects tended, however, to make more internal attributions under success than under failure conditions. Subjects who failed did not make more external attributions than did successful subjects. Interestingly enough, success was attributed to task difficulty (i.e., easy task) more often than failure (i.e. difficult task). Finally, ability was the specific attribution most frequently reported under both success and failure conditions. Subjects not only attributed their success to high ability, but also indicated they failed because they lacked ability on the task.

Gill (1980) conducted two controlled laboratory studies to examine success/failure attributions between and within two-person teams competing on a motor maze task. Both studies found that under successful conditions team members attributed the success to their team (i.e., internal causes), while unsuccessful attempts were attributed to the opposing team (i.e., external causes). When asked whether the success or failure was due to themselves or their partner, members of winning teams attributed the success to their partners (i.e., external responsibility), while members of losing teams attributed responsibility to themselves (i.e., internal responsibility) . It should be noted that there were no sex differences in the attributional responses.

Bird and Brame (1978) studied team versus self attributions given by female college-age basketball players. They found that losers perceived that they had tried harder as individuals as compared to their team. Winners, in comparison to losers, indicated that both themselves, as individuals, and their team put forth more effort. When evaluating the team-ability variable there were no significant differences in how losers evaluated their own versus their team's ability. Conversely, winners rated their team's ability ahead of their own. Members of successful teams perceived both themselves and their team as having greater ability than did players of the unsuccessful teams. Losing players reported that luck played a greater role in their individual performance than did successful players. The authors concluded that the major difference between self versus team internal attributions for winners and losers was that losers perceived themselves as trying harder than their team, while winners reported the team was more able than the individual player was.

Spink (1978) had 172 males (mean age = 17.2 years) rate the importance played by the team's ability, effort, task difficulty, luck and officiating in the outcome of basketball games. He found that winning teams made significantly more internal than external attributions, while losing teams did not exhibit differential preferences for internal or external attributions. Internal factors (i.e., effort and ability) were used significantly more than all other factors in win situations regardless of whether the win was a decisive (greater than 20 points) or a close outcome (less than six points). For losses, however, a close loss was attributed more to task difficulty, lack of effort and officiating, while a decisive loss was attributed more to lack of effort and task difficulty.

Gill, Ruder and Gross (1982) used an open-ended question format to collect team causal attributions from 258 females and 32 males following either a competitive volleyball match or a team motor maze task. Subjects were all college undergraduates. Once the attributions were sorted into the appropriate causal dimensions, loglinear analyses were performed to examine the interrelationships of the three-dimensional categorization. When outcome was disregarded, the subjects most frequently tended to make internal, unstable, controllable attributions (e.g., immediate effort). When outcome was considered, members of winning teams used more unstable, controllable attributions than did members of losing teams. Winning team members gave significantly more controllable than uncontrollable attributions; whereas, members of losing teams gave an equal number of controllable and uncontrollable attributions. It should be noted that even though losers gave more external attributions (e.g., luck, task difficulty) than did winners, they still gave predominantly internal attributions.

Auvergne (1983) used a paper-pencil instrument to assess how three skill-level groups of skiers (above average, average, below average) rated the importance of effort, task difficulty, ability and luck for both successful and unsuccessful performances. Both male and female skiers participated in the study (mean age = 15 years). She found that skiers with above average and average skills attributed success to internal, unstable factors (i.e., effort); whereas, below average skiers attributed successful performances almost equally to the four factors. More of the above average and average skilled skiers attributed unsuccessful performances to the external, stable (i.e., task difficulty) and external, unstable (i.e., luck) factors; whereas, below average skiers attributed failing performances almost equally to the internal, stable (i.e., ability) and external, stable (i.e., task difficulty) factors. These results revealed that more of the above average and average ability skiers attributed success internally and failure externally than did the below average skiers. Gender differences were not examined.

McAuley and Gross (1983) studied the causal attributions that college age male and female students (n=62) gave after winning or losing a competitive table tennis game. They utilized Russell's (1982) Causal Dimension Scale to measure the causal attributions. This scale initially assesses the respondent's causal explanation for an event outcome by posing an open-ended question. Next, the scale assesses the respondent's perceptions of the cause(s) stated in the open-ended section by posing a series of closed questions (each of the closed questions is rated on a five-point scale). It was found that winners gave more internal, stable, controllable attributions (i.e., typical effort) than did losers, however, it was noted that subjects overall, regardless of outcome, tended to make internal, unstable, controllable attributions (i.e., immediate effort). It should be noted that table tennis is an individual sport and thus the causal attributions reflect self-ascriptions to causality.

The Russell Causal Dimension Scale was also utilized in two separate studies which examined the causal attributions made by male and female individual sport athletes (n=59) following competition (Mark, Mutrie, Brooks and Harris, 1984). In both cases it was found that winners gave significantly more stable, controllable attributions (i.e., typical effort) than did losers. There was no difference between winners and losers on the locus of causality (i.e., internal versus external) scale as both gave predominantly internal attributions. No gender effects or gender by outcome interaction effects were found.

Riordan, Thomas and James (1985) used an open-ended questionnaire format to collect the causal attributions made by male (n=54) and female (n=25) racquetball players following a match in tournament play. They found that the locus of causality dimension was the only attributional dimension which was significantly affected by outcome. Both males and females made more internal than external causal attributions following wins. Gender influenced attributions, in that following a loss, females made more external than internal attributions, while males made more internal than external attributions. Males made significantly more unstable attributions than females following wins. Males also tended to make more unstable attributions than females following losses, however, this difference was not statistically significant.

Summary

It is difficult to give a decisive summary of the results reported in this section. Each study within the areas of laboratory (i.e., Gill, 1980; Iso-Ahola & Roberts, 1977), team sport under field conditions (i.e., Bird & Brame, 1978; Gill et al., 1982; Spink, 1978), and individual sport under field conditions (i.e., Auvergne, 1983; Mark et al., 1984; McAuley & Gross, 1983; Riordan et al., 1985) reported results stemming from varied research designs, measurement instrumentation and subject pools. The only common theme running through these studies was the fact they attempted to examine causal attributions following distinct success or failure outcomes (either real or hypothetical) on some gross motor activity. The studies which utilized the open-ended format (i.e., Gill et al., 1980; Riordan et al., 1985) will be particularly valuable for comparing the results of the present study.

Causal Attributions Given by Children in Sport Settings

A dearth of literature exists on the causal attributions given by youth sport participants following sport outcomes. The completed studies have utilized a variety of methodological techniques and have focused primarily on examining attributional patterns following wins and losses. Very few studies have included young female sport participants. In addition, only one published study has addressed the issue of young athletes' expectations for future performance following wins and losses in competitive sport contexts. This section will focus initially on the outcome-attribution related literature, followed by the studies that have included young female participants and conclude with the expectation study.

In a controlled laboratory setting, where success and failure at a competitive motor maze task was experimentally manipulated, Scanlan (1977) examined whether boys (10-12 years old) who were highly successful during competition would attribute their success more to internal causes than would those who were moderately successful or unsuccessful. She found that a greater number of external attributions (i.e., to the game or opponent) were made after success while more internal attributions (i.e., myself) were made after moderate success and failure. Fifty percent of the failure group, 43% of the moderately successful group and only 11% of the highly successful group attributed the cause of the outcomes to internal factors.

Iso-Ahola (1977) studied the causal attributions for game outcomes given by 150 "Little League" baseball players (mean age = 11.3 years). The study utilized a questionnaire to gather causal attributions immediately after the game. Nine questions were asked pertaining to self, team and coach attributions. The questions asked the players to rate (on a five-point Likert scale) the importance of ability, effort, luck and task difficulty from a personal and a team perspective with respect to why the game was won or lost. Game outcomes were classified as a clear-win, clear-loss (win or lose by more than five runs) or bare-win, bare-loss (win or lose by one to four runs). It was found that regardless of margin of victory, success was attributed to both effort and ability. A clear-loss was attributed to effort and task difficulty, while a bare-loss was predominantly attributed to task difficulty and only secondarily to low effort.

In his study of 202 "Little League" baseball players (mean age = 12 years) Roberts (1978) asked the boys to rate (on a five-point Likert scale) why their team won or lost the game on the basis of ability, effort, luck and task difficulty attributions. These attributions were collected at the conclusion of the game, immediately after the post-game handshake. He found that teams who lost the current game after having consistently won four previous games rated the task less difficult than did teams who lost their current game after having consistently lost previous games. With respect to ability, teams who lost the current game after having consistently lost previous games rated their team significantly less able than did both teams with a history of losing who won the current game and teams who lost the current game after having consistently won previous games. Teams, which won the current game after having a history of losing, rated team effort significantly higher than did teams which won the current game after having a history of winning, and teams that lost the current game after having a history of losing. Finally, the luck factor was rated significantly higher by losing teams than by winning teams.

Bukowski and Moore (1980) examined the causal attributions 62 boys (7-16 years old) gave for their team's success and failure after a series of sporting events staged at a summer camp. The causal attributions for success and failure were collected the day after the completion of three days of athletic competition. A list of possible attributions were given to the boys and they were asked to rate (on five-point Likert scales) the items according to their importance as causes for their team doing better or worse than the other teams over the competition. Players on winning teams attributed their success to athletic ability and effort, whereas players on losing teams attributed their lack of success to luck and the difficulty of the events. Thus, success was attributed to internal factors, while failure was attributed to external factors.

Kimiecik and Duda (1985) utilized both open-ended and forced-choice attribution questions when interviewing boys (9-12 years old) following a one-on-one basketball tournament. The forced-choice questions, which followed the open-ended question in the interview, required the subjects to choose the one causal element (i.e., ability, effort, luck, task difficulty) which they felt was responsible for the outcome. For the forced-choice format 76.2% of the winners and 23.8% of the losers chose internal attributions (i.e., effort or ability) to explain the outcome. Under the open-ended question format 76.5% of the losers compared to 50% of the winners gave internal attributions for the outcome. No explanation was given for the large discrepancies between the internal and external attributions given under forced-choice and open-ended formats. It was suggested that future research examine which attribution method gives the most accurate picture of athletes' causal reasoning in sport.

Two of the studies (Bukowski & Moore, 1980; Iso-Ahola, 1977) clearly found that young male athletes attribute wins to effort and ability (i.e., internal causes) and losses to task difficulty or luck (i.e., external causes). Roberts' (1978) results indicated that history of wins and losses affected young males causal attributions for a given game, while Kimiecik & Duda (1985) noted that attributional responses to wins and losses varied depending upon the methodology utilized. The following section will review those studies that have included young female participants as subjects.

With respect to gender differences Bird and Williams (1980) examined the development of attributions in 192 boys and 192 girls between the ages of seven and 18. The subjects read three sport-related stories and after reading each story they were asked to evaluate the outcomes on the basis of ability, effort, task difficulty, and luck. It was found that 7-9 year old boys and girls used both effort and luck to explain the outcomes for both male and female athletes. For 10-12 year old boys and girls the degree of luck and outcome covaried, while in both 10-12 and 13-15 year old boys and girls the degree of effort and outcome covaried regardless of the performer's sex. Both boys and girls in the 16-18 year old group attributed successful performance by males solely to effort (i.e., internal and unstable cause), while successful female performances were attributed to luck (i.e., external and unstable cause). These results suggest that by late adolescence, sex-role stereotypes exist and the directional bias of these stereotypes is positive for males and negative for females. Further, these biased stereotypes were held similarly by both males and females.

Roberts, Kleiber, and Duda (1981) interviewed 75 male and 70 female subjects (9-11 years old) about sport participation patterns and general attributions for why teams win or lose in various physical activity settings. An open-ended format was used to collect children's causal attributions for why teams won or lost games. Ability accounted for 46% of the winning and 16% of the losing attributions. Effort accounted for 21% of the winning and 31% of the losing attributions. When success and failure attributions were combined, ability accounted for 32% of all the attributions made while effort accounted for 26%. No sex differences were evident in the causal attributions.

Scanlan and Passer (1980a) studied the attributional ratings which 11-12 year old boys gave following a game mid-way through their soccer season. They found that winning players gave more internal attributions (i.e., ability and effort) than did losers; however, losers did not give more external attributions than did winners. It should be noted that even though losers gave fewer internal causal attributions than winners, they still judged internal factors to be the most important determinants of game outcome. Both winners and losers judged that ability and effort were the two most important causal explanations for game outcome, followed by task difficulty and luck.

In a parallel study which examined the causal attributions that 10-12 year old girls gave following a mid-season soccer game, Scanlan and Passer (1980b) found that winners rated their team's ability and effort (i.e., internal attributions) as more important causes of their team's performance than did those who lost or tied the game. Losers rated their team's lack of effort and task difficulty as the most important causes of their team's outcome. With respect to external attributions, game winners perceived their team had better luck and less opponent difficulty than did those players who tied and lost the game. In addition, players on tying teams rated their team's ability and luck higher than did losing players, while the perception of effort and task difficulty ratings did not differ between losing and tying players.

Daughdrill (1978), [in an unpublished Master's thesis cited by Thomas, Gallagher & Thomas, 1982], studied the attributional patterns of youth sport participants (8-12 years old). She found that as age increased, females increasingly attributed successful outcomes to the external cause, luck, and less to the internal cause, effort. Males, on the other hand, increasingly attributed success to the internal causes, effort and ability and unsuccessful outcomes to the external cause, luck.

Daughdrill also investigated the effects of outcomes on future expectancies across different age levels. She noted trends in her data suggesting that regardless of past experience and outcome, younger players (eight year olds) were more confident than older players (12 year olds) that they would win in the next game. With increasing age, a consistent past outcome (winning or losing) significantly influenced the childrens future expectations. Losers expected to lose and winners expected to win. No sex differences were noted.

Summary

There has been very limited research on young athletes' attributions for sport outcomes, and the results of the research are far from conclusive. Whereas Bird and Williams (1980) and Daughdrill (1978) found sex differences in the causal attributions given by young sport participants, Scanlan and Passer (1980a, 1980b) and Roberts et al. (1981) did not find any clear sex differences. Bird and Williams (1980) found that age differences were apparent in the causal attributions given by the young sport participants in their study and Daughdrill found that a consistent past outcome influenced older children's future expectations.

CHAPTER III

METHODS AND PROCEDURES

Study Sample

The population for the study was established as seven to fifteen year-old participants in the sports of hockey and ringette in the city of Edmonton, Alberta during 1985-86. The hockey population was predominantly male and the ringette population was exclusively female. The sample for the study was selected from the overall population on the basis of a number of criteria. Since the study was of a season-long nature and placed considerable data collection demands on the participants, it was necessary to select coaches and teams who were willing to devote considerable time to the study.

A representative sampling procedure was employed to select teams from the overall population of teams. Because of the extensive field-work demands of the study, geographical considerations were employed in selecting teams within reasonable proximity to the research centre so as to keep time and financial expenses to a minimum. This resulted in the selection of one of the five regions within the overall minor sport organization as the base for the study. In the case of ringette, as there were not sufficient avaliable teams within the designated area, two additional teams were recruited from an adjoining regions.

An attempt was made to select teams from the population of teams in the designated region, which were considered generally representative of or typical of other teams in that area. Two hockey teams were selected from each of the Mite (8-9 year olds), the Pee Wee (10-12 year olds) and the Bantam (13-15 year olds) levels. Two ringette teams were selected from each of the Petites (8-9 year olds), the Tweens (10-12 year olds), and the Junior Belles (13-14 year olds) levels. The total sample and demographic breakdowns for both the hockey and ringette samples are presented in Table 3.

Measuring Instrument

Short pre-game and post-game questionnaires comprised the measuring instrument. Both sets of questionnaires contained two common series of questions: the children's form of the Competitive State Anxiety Inventory (CSAI-C) (Martens, Burton, Rivkin & Simon, 1980) and the Semantic Differential Mood State Scales for Affect, Activation and Motivation (Chalip, Csikszentmihalyi, Kleiber & Larson, 1984). In addition to these two scales the pre-game questionnaire included questions pertaining to the amount of choice the player had in coming to the game, the availability of other things to do, how well the player thought he/she would play, how sure the player was that the team would win the game, and whether or not anything

Table 3

Sample Size for Hockey and Ringette

	Sport		
Age Group	Hockey (Males)	Ringette (Females)	Totals
Young group (8-11 years of age)	32	38	70
Old group (12-15 years of age)	61	37	98
Totals	93	75	168

was worrying the child about playing the game. The post-game questionnaire included questions concerning the amount of fun experienced, personal performance, how much was at stake, perceived challenge in the game, playing time relative to other team-mates, outstanding positive or negative events during the game, why the team won/lost the game, and expectations of team success when playing the same team again.

Appendix A contains copies of both the pre-game and post-game questionnaires.

Data Collection

Each team was assigned a researcher (e.g., a male researcher for each boy's team and a female researcher for each girl's team) who was responsible for administering the appropriate measuring instrument before and after each game for the duration of the team's hockey or ringette season. During the game the researcher was responsible for making behavioral observations of significant game events that may have affected the individual's level of enjoyment for the respective game. The twelve researchers were required to go through a rigorous training period where they were briefed on the purpose of the study, their role, when and how to give out and collect the questionnaires, and the importance of establishing and maintaining a positive relationship with the parents, coaches and players. In order to make the first exposure to the team and coaches as non-threatening as possible, each researcher took a fellow researcher to their team's first practice of the season. This procedure ensured that each researcher had gone through at least one pre-post practice routine before they were exposed to a game situation. The two principal investigators conducted random quality control checks throughout the hockey and ringette season to ensure the correct procedures were being strictly adhered to by the researchers. In addition, mandatory bi-monthly meetings were held to address any problems encountered by the researchers.

The pre-game questionnaires were completed after the players finished putting on their equipment and before the coach gave the pre-game talk (approximately 5-10 minutes prior to the start of the game). The post-game questionnaires were completed immediately after the players entered the dressing room following the game and before the coach gave the post-game synopsis of team and/or individual play.

Causal attributions for game outcome were collected in the post-game questionnaire by asking the question, "Why do you think your team won/lost the game today?" Responses to this open-ended question were analyzed for their underlying dimensional properties using procedures similar to those implemented by Gill et al., (1982) and

Riordan et al., (1985). The procedure is described below. These two studies also used Weiner's revised three-dimensional model (Weiner, 1979) in their research.

Player's expectations with respect to their team's future success were measured by the question, "If you played the same team again, do you think your team would win?" which appeared on the post-game questionnaire. Responses to this question were either yes or no.

Procedure for Analyzing Causal Attributions

All responses to the question, "Why do you think your team won/lost the game today?" were coded verbatim from the questionnaires. This process yielded a wide variety of causal attributions for both winning and losing conditions. Each attribution was written on a separate sheet of paper to allow for independent ratings of each attribution. The attributions were sorted three times, once for each dimensional property (i.e., internal, external; stable,unstable; controllable,uncontrollable). Two raters sorted the causal attributions into their respective dimensions. Percent agreement between the two raters was consistently high. It was 83.8% on the stability dimension, 86.9% on the controllability dimension, and 96% on the locus of causality dimension. Any disagreements were re-evaluated, discussed and resolved by the two raters. A complete list of all the causal attributions given by the young athletes and the dimensional properties identified by the raters is presented in Appendix B. According to Weiner's revised three-dimensional model there are a total of eight possible dimensional combinations; however, no attributions fell into either the external, stable, controllable or the external, unstable, controllable cells for this study. In essence, no attributions were both external and controllable, a concern already expressed about the revised model (Weiner, 1979). Once the attributions were dimensionalized, percent response values for the six various dimensional combinations were determined (i.e., internal, stable, uncontrollable; internal, unstable, uncontrollable; internal, stable, controllable; internal, unstable, controllable; external, stable, uncontrollable; external, unstable, uncontrollable).

Guidelines for Placing Attributions into Causal Dimensions

It was essential to present guidelines for raters so the attributions could be dimensionalized in as objective a manner as possible. The criteria adhered to for placing the attributions into dimensions are presented below.

1. LOCUS DIMENSION (internal-external) - the attributions were classified as INTERNAL if something about either the team or the individual was mentioned in the cause (e.g., our teamwork was excellent). Any

attribution that did not suggest team or individual involvement was classified as external (e.g., the other team was really up for the game).

2. STABILITY DIMENSION (stable-unstable) - stable factors included such attributes as ability or lack of ability and any other type of attribute that did not vary over future contests (e.g., the other team has bigger players). Unstable factors included attributes related to effort or mood and any other cause that could vary over time (e.g., I'm sort of upset).

3. CONTROL DIMENSION (controllable-uncontrollable)- attributions that were under the direct control of the team or its members were be classified as controllable (e.g., because we passed the puck/ring). Thus, controllablility was defined from the performer's perspective. Any attribution not under the direct control of the individual or team was classified as uncontrollable (e.g., the referee did a poor job).

Rationale for Using Open-ended Format

A majority of studies that have examined the causal attributions of young sport participants have used forced-choice Likert or semantic differential scale formats to collect responses (Bird & Williams, 1980; Bukowski & Moore, 1980; Iso-Ahola, 1977; Roberts, 1978). That is, players were asked to rate the importance of ability, effort, luck and task difficulty from an individual or a team perspective with respect to why the game was won or lost. The assumption underlying these formats is that the four causal attributions provided for the participants comprise the most important causes of that outcome (Roberts & Pascuzzi, 1979). This assumption is problematic when the subjects are children, for as Gould (1982) suggests, the cognitions of young athletes may not adhere to adult-imposed research models. Therefore using just four causes to explain success and failure may be too limiting when dealing with young athletes in a competitive sport environment. In fact, Bar-Tal and Darom (1979) have suggested that future attribution studies dealing with children should investigate the actual causal reasons that they utilize to explain their achievement outcomes.

Several researchers (Elig & Frieze, 1979; Kimiecik & Duda, 1985; Rejeski & Brawley, 1983; Roberts & Pascuzzi, 1979; Weiner, 1979; Weiss & Bredemeier, 1983) suggest that the open-ended format is especially appropriate for exploratory investigations and as a first step toward establishing the pertinent causal factors in a particular achievement context. In view of the fact that this study was relatively exploratory in nature and, that it has been hypothesized that young subjects may not have established adult-like response patterns, an open-ended format was used to collect the causal attributions given by young athletes. The open-ended format has been used successfully in recent attribution studies with older athletes (Gill et al., 1982; Kimiecik & Duda, 1985; Riordan et al., 1985; Roberts & Pascuzzi, 1979).

Study Design

This study utilized a field study research design to examine the relationship between causal attributions following sport outcomes, gender, age, and outcome. To test the relationship between causal attributions, age, sex and outcome a 6 X 2 X 2 X 2 design was utilized. The six levels of the first factor (the attribution factor) were: internal, stable, uncontrollable; internal, unstable, uncontrollable; internal, stable, controllable; internal, unstable, controllable; external, stable, uncontrollable; external, unstable, uncontrollable.

The second factor (age) was divided into two categories with 8-11 year olds representing the younger group and 12-15 year olds representing the older group. These breakdowns were based on results of previous research (e.g., Nicholls, 1978; Daughdrill, 1978) that found distinctive attributional patterns for these two age groups. It would have been desirable to make the groups more distinct by examining 8-10 and 13-15 year olds, however due to low cell counts this was not possible.

The third factor (sex) had two categories, male and female.

The fourth factor (outcome) was based on two categories, win and loss. Very few ties were recorded for the teams in the sample, therefore only the effects of winning and losing were examined. Outcome could not be controlled or manipulated in this study. It is possible that in any of the ten games analyzed, one or more of the age groups could have either won or lost all of their games, thus nullifying the outcome variable. A summary of game outcome by age group and gender is contained in Table 4. A complete breakdown of all twelve teams' win/loss records over the first ten games of the season can be found in Appendix C.

In order to analyze the results according to the two-dimensional model, which will facilitate a comparison of the two and three dimensional models, a separate 4 X 2 X 2 X 2 design was utilized. The attribution factor was collapsed into four levels representing the four cells (i.e., internal, stable; internal, unstable; external, stable; external, unstable) of the two-dimensional model. All levels of the remaining variables (i.e., age, sex and outcome) were unchanged.

To test the relationship between the locus of stability attributions, age, sex, outcome and expectations for future performance, a 2 X 2 X 2 X 2 X 2

Table 4

Male and Female Win-Loss Records for the First Ten Games of the Season

	Male (6 teams)			Female (6 teams)		
Game	Win	Loss	Tie[a]	Win	Loss	Tie[a]
1	2	4	-	3	2	1
2	2	4	-	3	3	-
3	1	3	2	3	3	-
4	3	3	-	3	2	1
5	2	2	1[b]	3	3	-
6	3	2	1	3	3	-
7	3	3	-	3	3	-
8	1	5	-	4	2	-
9	3	3	-	3	2	1
10	2	3	1	1	5	1

[a] Ties were not included in the analysis.

[b] The post-game results were not collected for one of the male teams.

design was utilized. The two levels of the first factor (locus of stablility attributions) were stable and unstable.

The second factor (age) was divided into two categories with 8-11 year olds representing the younger group and 12-15 year olds representing the older group.

The third factor (sex) had two categories, male and female.

The fourth factor (outcome) was based on two categories, win and loss. Very few ties were recorded for the teams in the sample, therefore only the effects of winning and losing were examined.

The fifth factor (expectations) also had two categories. "Yes" the players expected their team would win, or "No" the players did not expect their team to win. These categories resulted from the question, "If you played the same team again, do you think your team would win?", which was responded to by a simple "Yes" or "No".

Data Analysis

To determine the relationship between causal attributions, age, sex, and game outcome, separate 6 X 2 X 2 X 2 log-linear analyses were performed for each of the first ten games of the hockey and ringette season. It was necessary to perform a separate log-linear analysis for each of the first ten league games as log-linear models are not yet capable of testing repeated measures designs. In order to be able to compare the results of the three-dimensional model to those of the two-dimensional model it was also necessary to complete separate 4 X 2 X 2 X 2 loglinear analysis on the first ten games of the hockey and ringette season. In order to supplement the loglinear results, contingency tables identifying the frequency and percent responses for the Attribution X Age X Sex X Outcome breakdowns for the first ten games of the hockey and ringette season were prepared. Contingency tables were also tabulated on the cumulative results (i.e., data for all ten games pooled) in order to provide a global view of the overall trends and/or differences which were borne out in the game-by-game analyses.

In order to test the hypotheses regarding locus of stability attributions, age, sex, game outcome and expectations for future performance, separate 2 X 2 X 2 X 2 X 2 log-linear analyses were performed for each of the first ten games of the hockey and ringette season. A contingency table identifying the frequency and percent responses for the locus of stability Attribution X Age X Sex X Outcome X Expectations breakdowns was also prepared. This table was based on the cumulative results only (i.e., data for all ten games pooled), as the response cells for the game-by-game analyses were very small.

Log-linear models were formulated to analyze categorical data that have more than a two-way cross-tabulation. The log-linear models are especially helpful in revealing potentially complex relationships between variables in a multi-way cross-tabulation (Norusis, 1985). In log-linear models, all variables that are used for classification are independent variables, and the dependent variable is the number of cases in a cell of the cross-tabulation. Log-linear models are similar to multiple regression models, however, unlike multiple regression, where the R increases as variables are added to the model, the log-linear model's chi-square terms decrease when additional variables are added. In a fully saturated log-linear model (i.e., where all possible main effects and interaction terms are entered into the model) the chi-square statistic progressivly decreases as main effects, two-way and three-way interaction terms are entered. In fact, the chi-square value for a saturated loglinear model is zero. The SPSSX program Hiloglinear (Norusis, 1985) is able to partition the chi-square into partial chi-square values in order to test for the significance of various main effects and interaction terms. The acceptable significance level was set at .05.

This study utilized a fully saturated log-linear model to test the hypotheses. The actual analyses examined the contributions of each variable (e.g., main effects) and the various interactions between the categorical variables (e.g., interaction effects). When significant partial chi-square values were noted in interaction terms it was necessary to perform post-hoc multiple comparison tests to determine which level combinations were responsible for the significance. For example, if the two-way Attribution X Sex interaction was significant, the post-hoc multiple comparison tests were used to determine which of the six levels of the Attribution factor were responded to differently by the males and females.

The post-hoc multiple comparison procedures for loglinear analysis are based on the estimates of the lambda (λ) parameters and subsequent standardized lambda results. To further elaborate, loglinear models use the natural logs of the raw cell frequencies rather than the actual raw values in the analysis (Norusis, 1985; Everitt, 1977). Once the natural logs have been calculated the lambda parameters are estimated from the data. These lambda parameters are simply the average log value of the frequencies in a particular category minus the grand (overall) mean value. Positive lambda values result when the average number of cases in a row or a column is larger than the overall average. These lambda values add up to zero across categories of a variable. Once the lambda parameters are estimated they are called parameter estimates. To test whether or not there are post-hoc differences between response levels, the ratio of the parameter estimate to the standard error of the parameter estimate is calculated to yield the standardized lambda value. Standardized lambda values exceeding 1.96 or -1.96 are considered significant at the .05 level (Goodman, 1964; 1984; Norusis, 1985).

CHAPTER 4

RESULTS AND DISCUSSION

The results section is organized to deal with the hypotheses in the order they are presented in Chapter 1. Before proceeding it is important to note a number of precautions.

First, there is a rule-of-thumb governing the sample size required to effectively perform a loglinear analysis. Generally, the total sample size divided by the number of cells in the cross-tabulation table should be greater than or equal to five (Reynolds, 1977). This requirement was not met in many of the analyses for the current study and this must be considered when viewing the results. This was a particular problem for higher order (e.g., three, four and five-way) interactions. A closer inspection of the contingency tables revealed that in many cases the lack of significance was probably due to empty cells or very small numbers rather than the nature of the responses. The empty cells were, in large part due to the fact that, in this field study, outcome was not and could not be controlled. For example, in some game by game analyses (i.e., games five and seven) both young female teams lost, leaving the win cells of the outcome factor empty. In addition, when the causal attributions given by these young girls fell into only three response categories for the Attribution factor, the remaining three response categories were empty. These empty cells placed limits on the interactions within the loglinear analyses.

It should also be noted that the main effects, two-way and in some cases the three-way interactions yielded many significant results over the first ten games of the season. However, because the nature and purpose of this study focuses on the relationship of causal attributions to age, sex, game outcome and expectations, only the pertinent four-way (i.e., Attribution X Age X Sex X Outcome) and five-way interactions (i.e., Stability X Age X Sex X Outcome X Expectation) are meaningful.

Secondly, it should be noted that for small samples, observed differences between categories under investigation must be approximately 50% or greater to reach significance at the .05 level for the chi-square statistic because of this lack of statistical power (Bishop, Fienberg & Holland, 1975). It was possible that some very important trends in the responses were present and did not yield a significant difference under the log-linear analysis. Therefore, in cases where the chi-square approached but did not reach a significant level in the loglinear analyses, any noticable trends in the contingency tables that were directly relevant to the study were noted and discussed.

A third concern with respect to the loglinear analyses performed is the fact that post-hoc multiple comparison tests (referred to after significant partial chi-square values were reported) were more conservative than the chi-square test. This incongruence was observed in many cases where the chi-square statistic was significant while the post-hoc multiple comparison tests approached but did not reach significance for the various levels under consideration.

Due to the concerns listed above, complete reliance on the log-linear analyses to test the hypotheses was not feasible. Therefore, the contingency tables were used extensively to reveal trends and significant differences in the attributional responses, and to test the hypotheses.

As was noted in the study design, ten separate 6 X 2 X 2 X 2 loglinear analyses were performed to test the relationship between causal attributions, age, sex and game outcome. Ten additional 2 X 2 X 2 X 2 X 2 loglinear analyses were performed to test the relationship between the stability of causal attributions, age, sex, game outcome and expectations for future performance. This alone yielded 20 loglinear tables. In addition, loglinear analyses on the two-dimensional model were calculated in order to make comparisons between the three-dimensional and two-dimensional attribution models. This also yielded

10 loglinear tables. In order to alleviate an abundance of tables, three summary tables for the loglinear analyses results were prepared for Chapter 4. The complete set of loglinear tables are included in Appendix D and will be referred to in the text. In addition, when the higher-order loglinear analyses ran into difficulties with empty cells or very low cell frequencies, contingency tables were referred to and one-way chi-square statistics were calculated. This yielded 30 contingency tables, 20 for the Attribution X Age X Sex X Outcome analyses (i.e., 10 for the three-dimensional results and 10 for the two-dimensional results) and 10 for the Attribution X Age X Sex X Outcome X Expectation analyses. The results of these tables were collapsed into three cumulative tables which represent the pooled frequency and percentage results over the entire 10 game period. These three cumulative tables will also appear in Chapter 4. The complete set of game by game contingency tables are included in Appendix E.

Youhg Childrens' Attributional Patterns Following Wins

Hypothesis 1 stated that there would be no sex differences in the causal attributions given by young children for a team win.

Testing this hypothesis initially required examining the Attribution X Age X Sex X Outcome interaction component of the loglinear analyses (Table 5). This four-

Table 5

Summary of Loglinear Analysis for Age and Sex Hypotheses

	Game									
	1	2	3	4	5	6	7	8	9	10
Att X Age X Sex X Outcome				*						
Att X Sex X Outcome										
Att X Sex X Age							*			
Att X Outcome X Age										
Sex X Outcome X Age		**				**		**	**	
Att X Sex	*	**	*	*		**	*	**		
Att X Outcome	**	**	**	**	**	**	**	**	**	**
Sex X Outcome	*		**	**	**			**		**
Att X Age	*					*	**			
Sex X Age				**	**		**		**	**
Outcome X Age		**	**		**	*	*			**
Attribution	**	**	**	**	**	**	**	**	**	**
Sex	*			**						
Outcome	*					**		*	**	*
Age	**	**	*	**	**	*	**	**	*	**

$^{*}p < .05$. $^{**}p < .01$.

way interaction yielded one significant chi-square value in the fourth game of the season ($\chi^2 = 7.06$, $p < .03$)(Table D-4). The post-hoc multiple comparison tests (i.e., parameter estimates) approached but did not reach significance. A closer look at the contingency table for Game Four (Table E-4) revealed that only two young males and 10 young females gave attributions under the win column. These small frequencies jeopardize any form of further statistical analysis.

It is important to recognize the limitations the field study research design places on the statistical analyses; however, it is equally important not to lose sight of the trends in the young males and females attributional responses that can be borne out of the game by game contingency tables. The following section will focus on a detailed summary of how young males and females attribute winning over the first ten games of their sport season. It will be shown that there are many similarities in the way young males and females attribute winning.

Initially, it must be noted that over the ten game span, the young males made only 35 attributions following wins. This relatively low number of responses can be explained rather easily when the team overall win-loss records are referred to (Appendix B). It can be seen from Appendix B that the young male teams in this sample did not win very many games! For Games Three, Six and Ten (Tables E-3, E-6, E-10, respectively) empty cells were encountered for young male wins. Only one young male win attribution was reported for both Games Two and Five (Tables E-2 and E-5 respectively). In Game Four, only two responses were given by the young males following a win (Table E-4). Of the ten game total of 35 attributions received from the young males after wins, four games accounted for 31 of these attributions (Tables E-1, E-7, E-8, E-9). In three of these four games the young males gave predominantly internal, unstable, controllable attributions (e.g., immediate effort) (Tables E-1, E-7, E-9). For game Eight, the young males gave predominantly internal, stable, controllable attributions (e.g., typical effort) (Table E-8). Over the entire ten game period the young males never once made any internal, stable, uncontrollable (e.g., ability) or external, stable, uncontrollable (e.g., task difficulty) attributions following a win. Thus the young males used attributions that predominantly reflected their personal control of the winning outcome.

A similar pattern emerges when the young females' responses are summarized. Over the ten game period the young females gave 95 attributions following wins. There were no win attributions given by the young females for Game Five (Table E-5). In referring to Appendix B, it can be seen that both the Petite ringette teams lost that game. Therefore nine of the ten games accounted for the 95 attributions given by the young females after wins. In seven of these nine games the females gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions following wins (Tables E-1, E-2, E-4, E-6, E-8, E-9, E-10 respectively). In Game Seven, the females gave predominantly internal, stable, controllable attributions (e.g., typical effort), followed by internal, unstable, controllable attributions (e.g., immediate effort), while in Game Three the females gave an equal number of internal, stable, controllable (e.g., typical effort) and external, unstable, uncontrollable (e.g., luck) attributions for winning (Table E-7 and E-3 respectively). Over the ten game period the females made responses to all six attribution categories, though not on an equal basis.

In summary, both young males and females tended to give predominantly internal, unstable, controllable attributions (e.g., immediate effort) following wins. The trends of the game by game analysis are made even clearer when the cumulative contingency table is reviewed. This table shows that when the results of all ten games are pooled, 55.8% of the attributions given for winning by young females and 48.6% of those given by young males were internal, unstable, controllable (e.g., immediate effort) (Table 6). The second most frequent category was internal, stable, controllable (e.g.,

Table 6

Cumulative Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations

		Win		Loss	
Attribution Category		Male	Female	Male	Female
ISU (Ability)	Young	---	9.5 (9)	---	---
	Old	---	---	1.0 (2)	---
IUU (Mood)	Young	5.7 (2)	4.2 (4)	17.4 (16)	37.1 (43)
	Old	8.1 (14)	3.7 (7)	24.9 (49)	33.8 (24)
ISC (Typical effort)	Young	37.1 (13)	22.1 (21)	1.1 (1)	---
	Old	52.9 (91)	24.6 (47)	.5 (1)	---
IUC (Immediate effort)	Young	48.6 (17)	55.8 (53)	53.3 (49)	22.4 (26)
	Old	34.9 (60)	65.9 (126)	50.8 (100)	47.9 (34)
ESU (Task difficulty)	Young	---	2.1 (2)	19.6 (18)	35.3 (41)
	Old	---	4.2 (8)	9.1 (18)	7.0 (5)
EUU (Luck)	Young	8.6 (3)	6.3 (6)	8.7 (8)	5.2 (6)
	Old	4.1 (7)	1.6 (3)	13.7 (27)	11.3 (8)

Note. Frequencies in brackets.

typical effort), which included 37.1% of the young males, and 22.1% of the young females' responses (Table 6). Therefore, internal controllable attributions, stable or unstable, accounted for 85.7% of the young males' and 77.9% of the young females' attributions following wins. Based on the loglinear and descriptive results, Hypothesis 1 is accepted. That is, there are no sex differences in the causal attributions given for winning by young males and females.

If the results are analyzed according to Weiner's original two-dimensional model the conclusions are somewhat different. There were no significant Attribution X Age X Sex X Outcome interactions according to the loglinear analyses (Table 7).

As was reported earlier, the young males gave win attributions on only four of the ten games analyzed. In three of these four games the young males gave predominantly internal, unstable attributions (e.g., effort) after wins (Tables E-11, E-17, E-19). In game Eight, the young males gave predominantly internal, stable attributions (e.g., ability) for the wins (Table E-18).

The young females gave predominantly internal, unstable attributions (e.g., effort) for winning on seven of the nine games analyzed (Tables E-11, E-12, E-14, E-16, E-18, E-19, E-20 respectively). They gave

Table 7

Summary of Loglinear Analysis for Age and Sex Hypotheses (Two-Dimensional Model)

	Game									
	1	2	3	4	5	6	7	8	9	10
Att X Age X Sex X Outcome										
Att X Sex X Outcome										
Att X Sex X Age							**			
Att X Outcome X Age										
Sex X Outcome X Age		*				**	**	**	**	
Att X Sex		**				**	**	**		
Att X Outcome	**	**	**	**	**	**	**	**	**	**
Sex X Outcome	*	**		**			**			**
Att X Age	*				*	**				
Sex X Age	*			**	**		**		**	**
Outcome X Age	*	**		**	**		*			**
Attribution	**	**	**	**	**	**	**	**	**	**
Sex	*			**						
Outcome	*				**		*	**		*
Age	**	*	**	**	*	**	**	*	**	**

*p < .05. **p < .01.

predominantly internal, stable attributions (e.g., ability) for winning in Game Seven (Table E-17) and an equal number of internal, stable (e.g., ability), internal, unstable (e.g., effort) and external, unstable (e.g., luck) attributions for winning in Game Three (Table E-13).

According to the cumulative contingency results for the two-dimensional model, 54.3% of the young males and 60.0% of the young females gave internal, unstable attributions (e.g., effort) for winning outcomes (Table 8). The second most frequently responded to category was internal, stable (e.g., ability), where 37.1% of the young males and 31.6% of the young females responded (Table 8). Conclusions drawn from this two-dimensional analysis would suggest that both young males and females attribute winning primarily to internal, unstable and secondly to internal, stable attributions.

The noticable difference between the results is the decreased importance of the ability-like factor when the three-dimensional rather than the two-dimensional model is utilized. With the addition of the third dimension (i.e., Locus of Control), a majority of the stable, internal attributions which, according to the two-dimensional model are interpreted as ability-like factors, can be seen to be stable effort type attributions according to the revised model. Hence,

Table 8

Cumulative Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model)

		Win		Loss	
Attribution Category		Male	Female	Male	Female
Internal, stable (Ability)	Young	37.1 (13)	31.6 (30)	1.1 (1)	---
	Old	52.9 (91)	24.6 (47)	1.5 (3)	---
Internal, unstable (Effort)	Young	54.3 (19)	60.0 (57)	70.7 (65)	59.5 (69)
	Old	43.0 (74)	69.6 (133)	75.6 (149)	81.7 (58)
External, stable (Task difficulty)	Young	---	2.1 (2)	19.6 (18)	35.3 (41)
	Old	---	4.2 (8)	9.1 (18)	7.0 (5)
External, unstable (Luck)	Young	8.6 (3)	6.3 (6)	8.7 (8)	5.2 (6)
	Old	4.1 (7)	1.6 (3)	13.7 (27)	11.3 (8)

Note. Frequencies in brackets.

although the results of the analyses using both the two and three-dimensional models would lead to a similar acceptance of the first hypothesis, the new model leads to further clarification by giving more precision to the type of attribution employed for winning outcomes.

The two-dimensional model results of both the game by game and cumulative analyses show that the young males and females both attribute winning primarily to internal, unstable attributions (e.g., effort) and secondly to internal, stable attributions (e.g., ability). These results concur with three youth sport studies who also found that both males and females attribute winning primarily to internal, unstable (e.g., effort) and secondly to internal, stable (e.g., ability) causes (Roberts et al., 1981; Scanlan & Passer, 1980a, 1980b). Interestingly enough, each of these studies also collected individual's perceptions of their team's attributions for winning and losing; with Scanlan and Passer using a field setting and Roberts et al. using a laboratory setting. Bird and Williams (1980) found that young boys and girls used both effort (e.g., internal, unstable) and luck (e.g., external, unstable) to explain wins, while Daughdrill (1978) reported that young males gave effort and ability attributions (e.g., internal, unstable and internal, stable) for winning and females gave effort and luck attributions (e.g., internal, unstable and external, unstable) for winning. Both of these studies collected childrens' personal attributions for winning and losing. Three other studies that used only male athletes found their subjects also attributed winning to effort and ability (e.g., internal, unstable and internal, stable) (Bukowski & Moore, 1980; Iso-Ahola, 1977; Kimiecik & Duda, 1985). Even though these studies used varying methodological techniques to collect their data, the results were similar, in that younger males and females gave predominantly effort (e.g., internal, unstable) attributions following wins. The second most important attributions varied between previous studies; most notably when individual versus team attributions were collected.

An important finding of this study was the noticable consistency of the young males and females attributions for winning over the entire ten game span. The young males gave predominantly internal, unstable attributions (e.g., effort) in three of the four games where win attributions were collected, while the young females gave predominantly internal, unstable attributions (e.g., effort) on seven of the nine games where win attributions were collected. Previous studies have used a single response approach.

There are no other youth sport studies with which to compare the three-dimensional results. Comparisons will thus be made to four studies which have analyzed college-age athletes' attributions for winning and losing using Weiner's revised model. The three dimensional model results of both the game by game and cumulative contingency analyses show that both young males and females attributed winning predominantly to internal, unstable, controllable causes (e.g., immediate effort) and secondly to internal, stable, controllable causes (e.g., typical effort).

Gill et al. (1982) also found that their predominantly female sample attributed winning to internal, unstable, controllable causes (e.g., immediate effort) while Riordan et al. (1985) found that the males in their sample gave predominantly internal, unstable attributions (e.g., immediate effort and mood) following wins. Conversely, two studies found that winners (both male and female) gave more internal, stable, controllable attributions (e.g, typical effort) than losers (Mark et al., 1984; McAuley & Gross, 1983). The females in the Riordan et al. (1985) study attributed winning equally to internal, stable (e.g., typical effort and ability) and internal, unstable causes (e.g., immediate effort and mood). The two studies that reported similar results to the current study used similar research designs where open-ended questions were collected and then rated for their dimensional properties (Gill et al., 1982; Riordan et al., 1985). Mark et al. (1984) and McAuley and Gross (1983) both utilized closed response questions to collect athlete's causal attributions for sport outcomes.

Regardless of the methodological procedure or the nature of the sample, the attributions received from athletes following wins are predominantly effort related (e.g., stable effort or unstable effort). The addition of the Locus of Control dimension has to a large extent eliminated the presence of ability attributions.

Young Childrens' Attributional Patterns Following Losses

Hypothesis 2 stated that there would be no sex differences in the causal attributions given by young children for a team loss.

Testing this Hypothesis required examining the same Attribution X Age X Sex X Outcome interaction component of the loglinear analysis that was used for Hypothesis 1 (Table 5). As was noted before, the only significant four-way interaction found was for Game Four ($\chi^2 = 7.06$, $p < .03$) (Table D-4). The post-hoc multiple comparison tests did not yield any significant level effects.

Over the ten game span the young males and females made 92 and 166 attributions, respectively, following losses. Game Five was the only instance where the young males did not make any loss attributions (Table E-5). Appendix B shows that one of the Atom teams tied the fifth game and the other Atom team's results were not collected for the fifth game, thus the young males made loss attributions in nine of the ten games. In five of the nine games the young males gave predominantly internal, unstable, controllable attributions (e.g., immediate effort) following losses (Tables E-1, E-2, E-3, E-6, E-8). The young males gave predominantly external, stable, uncontrollable attributions (e.g., task difficulty) following losses on two of the nine games (Tables E-7, E-9). Finally they gave predominantly external, unstable, uncontrollable attributions (e.g., luck) and predominantly internal, unstable, uncontrollable attributions (e.g., mood) for losing on one game each (Games Ten and Four, Tables E-10, E-4 respectively). Over the entire ten game period, the young males did not make any attributions to the internal, stable, uncontrollable (e.g., ability) category and they made only one attribution to the internal, stable, controllable (e.g., typical effort) category. Thus, the young males gave predominantly internal, unstable, controllable attributions (e.g., immediate effort) following losses over the ten games.

A different pattern emerges in the results for the young females. In five of the ten games the females gave predominantly internal, unstable, uncontrollable attributions (e.g., mood) following losses (Tables E-3, E-4, E-7, E-9, E-10). The young females gave predominantly external, stable, uncontrollable attributions (e.g., task difficulty) for losses on four of the ten games (Tables E-1, E-5, E-6, E-8). They gave predominantly external, unstable, uncontrollable attributions (e.g., luck) following one game (Game Two, Table E-2). In summary, the females employed two predominant categories for their attributions to losses; internal, unstable, uncontrollable (e.g., mood) and external, stable, uncontrollable (e.g., task difficulty). Over the ten games the young females did not make any attributions to either the internal, stable, uncontrollable (e.g., ability) or the internal, stable, controllable (e.g., typical effort) categories.

In summary, following losses, young males tended to give predominantly internal, unstable, controllable (e.g., immediate effort) and external, uncontrollable (e.g., task difficulty and luck) attributions, while young females tended to give predominantly internal, unstable, uncontrollable (e.g., mood) and external, stable, uncontrollable (e.g., task difficulty) attributions. In fact, the young males gave significantly more internal, unstable, controllable attributions following losses than the females on Game One ($\chi^2 = 5.78$, $p < .017$) and Game Three ($\chi^2 = 4.92$, $p < .028$) (Table E-1 and E-3).

These trends can be seen more clearly when the cumulative contingency table is reviewed. This table shows that 53.3% of the attributions made by the young males and 22.4% of those made by the young females following a loss fell in the internal, unstable, controllable (e.g., immediate effort) category (Table 6). Conversely, 37.1% of the attributions given by the young females and 17.4% of those given by the young males following losses were to internal, unstable, uncontrollable causes (e.g., mood), while 35.3% of the attributions made by the young females and 19.6% of those made by the young males following losses were to external, stable, uncontrollable causes (e.g., task difficulty) (Table 6). The most noticable difference in these results is the difference between the males and females on the control dimension of the attributions. The females gave predominantly uncontrollable attributions (e.g., mood and task difficulty), while the young males placed somewhat more emphasis on controllable than uncontrollable attributions following losses over the ten game period.

Based on the descriptive results utilizing the three-dimensional model Hypothesis 2 is rejected. There are differences in the way young males and females attribute a loss following a youth sport game.

Utilization of Weiner's two-dimensional model to classify the attributions would result in very different conclusions. There were no significant differences in the Attribution X Age X Sex X Outcome interactions according to the loglinear analyses (Table 7).

The young males gave predominantly internal, unstable attributions (e.g., effort) for losing on six of the ten games (Tables E-11, E-12, E-13, E-14, E-16, E-18) and predominantly external, stable attributions (e.g., task difficulty) for losing on two games (Tables E-17 and E-19). In Game Ten the young males gave predominantly external, unstable, attributions (e.g., luck) and in Game Five there were no young male responses for losing (Tables E-20 and E-15 respectively). In summary, following a loss the young males gave predominantly internal, unstable attributions (e.g., effort) with secondary emphasis on external types of responses (e.g., task difficulty and luck).

The young females gave predominantly internal, unstable attributions (e.g., effort) in eight of the ten games (Tables E-11, E-12, E-13, E-14, E-15, E-17, E-19, E-20). They gave predominantly external, stable attributions (e.g., task difficulty) on two of the ten games (Tables E-16 and E-18). Thus, the young females gave predominantly internal, unstable attributions (e.g., effort) and secondly gave external, stable (e.g., task difficulty) attributions for losing.

The cumulative contingency results for the two-dimensional model show that 70.7% of the attributions given by the young males and 59.5& of those given by the young females following a loss were in the internal, unstable category (e.g., effort) (Table 8). The second most frequently utilized category was external, stable (e.g., task difficulty), which included 35.3% of the attributions made by the young females and 19.6% of those made by the young males (Table 8). Together these two categories accounted for 90.3% of the young male and 94.8% of the young female responses over the ten game period.

The major difference between the three-dimensional and two-dimensional results again focusses on the insight that the control dimension adds to the results. Without the control dimension, both young males and young females appear to have very similar attributional patterns following losses. However, with the control dimension added, the females tend to use predominantly uncontrollable attributions, while the males use both controllable and uncontrollable attributions following a team loss.

The two-dimensional model results of the game by game and cumulative contingency analyses found that both young males and females gave predominantly internal, unstable (e.g., effort) and secondly external, stable (e.g., task difficulty) attributions following a team loss. Similar results have been reported in previous youth sport studies. Six studies reported that the internal, unstable (e.g., effort) causes were the predominant attributions given for losing by males and females (Bird & Williams, 1980; Iso-Ahola, 1977; Roberts et al., 1981; Scanlan & Passer, 1980a, 1980b; Spink, 1978). In addition, four studies mentioned that males and females placed secondary emphasis on external, stable (e.g., task difficulty) causes (Bukowski & Moore, 1980; Iso-Ahola, 1977; Scanlan & Passer, 1980b; Spink, 1978). No sex differences were noted in any of these studies. These findings are consistent with the current results.

The young males gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions following a team loss, while the young females gave predominantly internal, unstable, uncontrollable (e.g., mood) attributions following a team loss. The three previous studies that utilized the three-dimensional model found that both college-age males and females gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions following losses (Gill et al., 1982; Mark et al., 1984; McAuley & Gross, 1983). In other words, in the previous research, both college-age males and females gave attributions consistent with those of the young boys in the present study but different from those of the young girls.

Older Childrens' Attributional Patterns Following Wins

Hypothesis 3 stated that males will attribute a team win more to internal, stable attributions than will females.

Testing this hypothesis required examining the Attribution X Age X Sex X Outcome interaction component of the loglinear analysis (Table 5). As was previously noted, the only significant four-way interaction was for Game Four ($\chi^2 = 7.06$, $p < .03$) (Table D-4). The post-hoc multiple comparison tests did not yield any significant level effects. Closer scrutiny of the contingency tables revealed that in many of the loglinear analyses empty cells or extremely small frequencies were encountered, thus negatively affecting the probability of finding significant results. Even though the loglinear results did not reveal many significant results there are some noticable trends in the contingency tables that warrent further examination.

The males gave more internal, stable, controllable attributions (e.g., typical effort) for wins than did the females on nine of the ten games (Tables E-1, E-2, E-3, E-4, E-5, E-6, E-7, E-9, E-10). These gender differences were significant in Game Two ($\chi^2 = 5.80$, $p < .017$), Game Four ($\chi^2 = 11.52$, $p < .001$), Game Six ($\chi^2 = 10.32$, $p < .009$), and Game Seven ($\chi^2 = 5.88$, $p < .016$). There was only one male response for the win column in Game Eight, thus this game was not subjected to further analysis (Table E-8). It should be noted that the males gave predominantly internal, stable , controllable (e.g., typical effort) and secondly internal, unstable, controllable attributions for wins on six of the nine games where responses were made (Tables E-1, E-4, E-6, E-7, E-9, E-10). In Games Two and Five the males [illegible] predominantly internal, unstable, controllable (e.g., immediate effort) and secondly internal, stable, controllable attributions (e.g., typical effort) following wins (Tables E-3 and E-5).

Over nine of the ten games the older females gave more internal, unstable, controllable attributions (e.g., immediate effort) than did the older males for a team win and in each of these games this was the predominant attribution given by the females (Tables E-1, E-2, E-3, E-4, E-5, E-6, E-7, E-8, E-9). These gender differences were significant in Game One ($\chi^2 = 4.26$, $p < .042$) and Game Seven ($\chi^2 = 4.92$, $p < .028$). The females second most frequently responded to category for these nine games was internal, stable, controllable (e.g., typical effort). In Game Ten the females gave more internal, stable, controllable attributions for winning than did the males (Table E-10).

The cumulative contingency table echoes the game by game results as 52.9% of the attributions given by the older males and 24.6% of those given by the older females following wins fell in the internal, stable, controllable category (e.g., typical effort) (Table 6). Conversely, 65.9% of the attributions given by the older females and 34.9% of those given by the older males for winning fell in the internal, unstable, controllable category (e.g., immediate effort) (Table 6). These two categories account for 90.5% of the total female and 87.8% of the total male responses for the ten games. Hence, while both older males and females gave predominantly internal, controllable attributions for wins, the males gave more stable attributions than the females and the females gave more unstable attributions than the males.

On the basis of the contingency results Hypothesis 3 was accepted. The older males consistently gave more internal, stable, controllable attributions (e.g., typical effort) than the older females following team wins. It is important to note here that the prediction that males would give more internal, stable attributions than females following wins came from studies that utilized Weiner's two-dimensional model. Further, in much of this research a forced response format is used wherein ability is used as the specified response for the internal, stable category. According to the three-dimensional model, ability is classified in the internal, stable, uncontrollable category. The major difference with the addition of the control dimension was that the older males gave exclusively internal, stable, controllable attributions rather than internal, stable, uncontrollable attributions.

As can be gathered from the aforementioned results, a noticable difference in the results occurs when they are reported from the perspective of the two-dimensional model. When controllability is not considered in categorizing the attributions, the relative importance of the other categories shifts somewhat. The two-dimensional model loglinear analyses did not yield any higher order significant results (Table 7). According to the two-dimensional model contingency table results, the males gave more internal, stable attributions (e.g., ability) than the females over nine of the ten games analyzed (Tables E-11, E-12, E-13, E-14, E-15, E-16, E-17, E-19, E-20). These differences were significant in Game Two ($\chi^2 = 5.80$, $p < .017$), Game Four ($\chi^2 = 11.52$, $p < .001$), Game Six ($\chi^2 = 10.32$, $p < .009$) and Game Seven ($\chi^2 = 5.88$, $p < .016$). Once again, Game Eight had only one male response so it will not be included in the summary (Table E-18). The males gave predominantly internal, stable attributions (e.g., ability) on four of the nine games reviewed (Tables E-14, E-16, E-17, E-19). On four games the males gave predominantly internal, unstable attributions (e.g., effort) following wins (Tables E-12, E-13, E-15, E-20). Finally, in Game One the males placed equal importance for winning on both internal, stable and internal, unstable attributions (Table E-11).

The contingency results revealed that females consistently gave more internal, unstable (e.g., effort) attributions than the males on nine of the ten games (Tables E-11, E-12, E-13, E-14, E-15, E-16, E-17, E-18, E-19).

According to the cumulative contingency results 52.9% of the attributions given by the older males and 24.6% of those given by the older females for winning fell in the internal, stable (e.g., ability) category (Table 8). Conversely, 69.6% of the attributions given by the older females and 43.0% of those given by the older males for winning fell in the internal, unstable (e.g., effort) category) (Table 8). The major difference between the two-dimensional and three-dimensional model results rests in the more precise information provided by the categories of the three-dimensional model. With the addition of the control dimension, the males attributions are now seen to be predominantly effort related whereas with the two-dimensional classification they are classified as being more ability related.

Hypothesis 4 stated that females will attribute a team win more to external, unstable attributions (e.g., luck) than will males.

The Attribution X Age X Sex X Outcome loglinear analyses yielded only one significant result (Table 5), that for the fourth game, and subsequent post-hoc multiple comparison tests for that game did not find any significant level effects (Table D-4).

Examination of the cumulative contingency results indicated that there were not enough responses in the external, unstable, uncontrollable category (e.g., luck) to warrant any further statistical analyses. Over the ten games only three external, unstable, uncontrollable attributions were made by females and only seven by males (Table 6). Hence, Hypothesis 4 was rejected.

This section has shown that older males consistently gave more internal, stable, controllable attributions than did the older females and the older females consistently gave more internal, unstable, controllable attributions than did the older males following team wins over a ten game period.

The two-dimensional results of the game by game and cumulative contingency analyses found that the older males gave more internal, stable attributions (e.g., ability) than did the older females following a team win, while the older females gave more internal, unstable attributions (e.g., effort) than did the older males following a team win.

The predominance of internal, stable attributions (e.g., ability) given by the older males following wins concurs with the results of Daughdrill, 1978. Two other studies, however, reported that males gave predominantly internal, unstable attributions (e.g., effort) following success in an athletic event (Auvergne, 1983; Riordan et al., 1985). All three of these studies collected individual sport athlete's attributions for their personal win or loss in a game.

Under the three-dimensional model the older males consistently gave more internal, stable, controllable attributions (e.g., typical effort) than the older females, while the females consistently gave more internal, unstable, controllable attributions (e.g., immediate effort) than the older males following a team win. The two major differences noted from the two-dimensional results are the decreased importance of ability-like factors with the addition of stable effort-like factors as a separate classification and the fact that both the older males and females gave controllable attributions following wins. In fact, although both males and females gave internal, controllable attributions, the males perceived their effort to be more stable than did the females. The two previous studies that utilized the three-dimensional model found that combined samples of older males and females gave internal, stable, controllable attributions (e.g., typical effort) following wins (Mark et al., 1984; McAuley & Gross, 1983). No separate sex breakdowns were reported. Gill et al. (1982), who had a predominantly female sample, found that, similar to the current results for older females, winners attributions were predominantly internal, unstable, controllable (e.g., immediate effort).

Regardless of which of the two attributional models is used, the results have problematic implications for female achievement behaviors. Weiner (1984) has postulated that expectations about future success or failure on an achievement task are determined primarily by the locus of stability. Therefore, when success is attributed to unstable attributions, there is less expectancy for future success than when the successful outcome is attributed to stable attributions. The present results clearly show that the older females gave more unstable attributions than did the older males following wins and thus, at this relatively young age (i.e., 12-15 years) are perhaps already predisposed to lowered expectancies of success in future athletic endeavors.

The more revealing finding comes when patterns in both the younger and older childrens' responses are reviewed. The older females, the younger females and the younger males gave predominantly internal, unstable, controllable responses (e.g., immediate effort) following a team win, whereas the older males gave prediminantly internal, stable, controllable responses (e.g., typical effort) following a team win. It appears that the young males switch from predominantly unstable to predominantly stable attributions following wins as age increases, thus, perhaps, predisposing themselves to greater expectations of success in future hockey games. There is no evidence of a similar change in the stability of the females attributions as age increases. The section on the Attribution-Expectation relationship will examine the subsequent effect these stable and unstable response patterns for winning have on both the younger and older males' and females' expectations for future success.

An important question arising from the observed results is, what events, societal factors, etc. cause the difference between the younger males reporting predominantly unstable attributions for wins and the older males reporting predominantly stable attributions for wins? One potential answer considered was that the differences were related to differing win/loss records for the older and younger groups of boys. That is, if the younger males lost most of their games and the older males won most of their games, then it is possible that the younger males would make a more unstable attribution for the unusual winning outcome, while the older males would make a stable attribution for a relatively stable winning outcome. The fact that the younger and older boys teams had very similar win/loss records strengthens this finding.

Similarly, win/loss records were discounted as an explanation for the female attributional patterns when it was noted that the younger females had far more losses than the older females (Appendix B). In fact, the older females also recorded far more wins than their older male counterparts (Appendix B).

Perhaps the results reflect different socialization influences for the two sexes. This explanation would be supported by previous research (i.e., Deaux, 1976; Deaux & Emswiller, 1974).

Older Children's Attributions Following Losses

Hypothesis 5 stated that males will attribute a team loss more to external, stable attributions (e.g., task difficulty) than will females.

Testing this hypothesis required examining the same Attribution X Age X Sex X Outcome interaction component of the loglinear analysis that was used for Hypothesis 4 (Table 4). As was noted before, only one significant four-way interaction was found and the post-hoc multiple comparison tests did not yield any significant level effects. It was not necessary to go beyond the cumulative contingency tables to reject this hypothesis. The cumulative results showed that only 9.1% of the older males' responses and 7.0% of the older females' responses following losses over the ten games fell in the external, stable, uncontrollable (e.g., task difficulty) category (Table 6). This was a total of only 18 male responses and five female responses over the ten games, hence Hypothesis 5 was rejected. There were, however, some noticable consistencies in the males responses which warrant reporting.

The older males gave more internal, unstable, controllable attributions (e.g., immediate effort) than did the older females on four of the six games where comparisons were possible (Tables E-1, E-3, E-4, E-5). These differences were significant for Game One (χ^2 = 5.78, $p < .017$) and Game Five ($\chi^2 = 4.92$, $p < .028$).

The males gave predominantly internal, unstable, controllable attributions (e.g., immediate effort) on six of the ten games analyzed (Tables E-1, E-3, E-4, E-5, E-7, E-8). On Games Two and Nine the males gave predominantly internal, unstable, uncontrollable attributions (e.g., mood) following losses and on Game Ten the males gave predominantly external, unstable, uncontrollable attributions (e.g., luck) following losses (Tables E-2, E-9, E-10 respectively). As was noted earlier, there were no male loss responses for Game Six (Table E-6).

These consistent patterns in the males' attributions after losing were reflected in the cumulative contingency table. Fifty-one percent of the attributions given by older males following losses were internal, unstable, controllable (e.g., immediate effort), while 25.0% were internal, unstable, uncontrollable (e.g., mood) (Table 6). These two internal, unstable categories accounted for 76.0% of the total older male attributions for losses given over the entire ten games. Thus, it can be concluded that the older males tended to give predominantly internal, unstable attributions (e.g., immediate effort and mood) following team losses.

Had these results been analyzed using Weiner's two-dimensional model, even stronger support would have been given to the above conclusion. That is, the older males consistently gave predomiantly internal, unstable attributions (e.g., effort) on eight of the ten games (Tables E-11, E-12, E-13, E-14, E-15, E-17, E-18, E-19). For Game Ten the older males gave predominantly external, unstable, uncontrollable attributions (e.g., luck) following losses (Table E-20). In Game Six no older male responses to losses were given (Table E-16).

The cumulative contingency table summarizes these results. Seventy-six percent of the attributions given by the older males following losses were internal, unstable (i.e., effort), while 13.7% were external, unstable (i.e., luck) (Table 8). Hence, the older males in this study primarily attributed a team loss to internal, unstable causes (e.g., effort) regardless of which dimensional model was used.

Hypothesis 6 stated that older females will attribute a team loss more to external, unstable (e.g., luck) attributions than will older males.

Testing this hypothesis required examining the same Attribution X Age X Sex X Outcome interaction component of the loglinear analysis that was used for Hypothesis 5 (Table 5). As was noted before, only one significant four-way interaction was found and the post-hoc multiple comparison tests did not yield any significant level effects.

As was true for the previous hypothesis, it was unnecessary to look any further than the cumulative contingency table to reject this hypothesis. The cumulative results showed that only 11.3% of the females and 13.7% of the males gave external, unstable, uncontrollable (e.g., luck) attributions following a team loss (Table 6). This turned out to be a total of 29 responses for the males and eight responses for the females over the entire ten game period. Hence, Hypothesis 6 was rejected.

The game by game contingency tables revealed some other important trends in the older females results that warrant discussion. On three of the ten games the older females gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions (Tables E-2, E-6, E-7). On two of the ten games the older females gave predominantly internal, unstable, uncontrollable responses (e.g., mood) following losses (Tables E-1, E-4). On Games Three and Five the older females gave an equal number of both internal, unstable, controllable and internal, unstable, uncontrollable attributions (Tables E-3, E-5). On three of the ten games there were no female losses recorded (Tables E-8, E-9, E-10). Closer scrutiny of Appendix B revealed there were no losses for either of the Junior Belles teams in those games.

The cumulative contingency table revealed that 47.9% of the attributions for losses given by older females were internal, unstable, controllable (e.g., immediate effort) and 33.8% were internal, unstable, uncontrollable (e.g., mood) (Table 6). These two internal, unstable categories accounted for 81.7% of the total female attributions to losses over the ten game period. Thus, it could be concluded that the older females tended to give predominantly internal, unstable (e.g., immediate effort and mood) attributions following team losses.

Analysis for the data using Weiner's two-dimensional model yielded very similar results. There were no significant results in the four-way loglinear analyses (Table 7); however, the contingency tables showed that the females gave predominantly internal, unstable (e.g., effort) attributions on seven of the ten games (Tables E-11, E-12, E-13, E-14, E-15, E-16, E-17). On three of the ten games no loss attributions were recorded for the older females (Tables E-18, E-19, E-20). The cumulative contingency table showed that over all ten games 81.7% of the female attributions for a team loss were internal, unstable (Table 8). These findings are very similar to those found in the three-dimensional analysis. Therefore, it appears that contrary to the stated hypothesis, older females attributed team losses to internal, unstable causes (e.g., effort) rather than to external, unstable causes (e.g., luck).

The two-dimensional results consistently show that the older males and females gave predominantly internal, unstable (e.g., effort) attributions following a team loss. These results were contrary to previous findings which found that the older males gave more external, stable (e.g., task difficulty) attributions than the older females following losses; whereas, older females gave more external, unstable attributions than older males following losses (Daughdrill, 1978; Riordan et al., 1985; Spink, 1978).

The current loss attributional response patterns are more advantageous, than those previously reported, for subsequent performance. By giving internal, unstable (e.g., effort) attributions following losses, both the males and females are leaving themselves hope for success in future games. If they had followed the same self-debilitating attributional pattern seen in the younger and older females responses following wins, then grave concern could be expressed for the future participation by the females in this study. The somewhat more positive internal, unstable (e.g., effort) response patterns following losses for females as well as males may help to neutralize the effect on expectations for future success that the unstable responses given following wins may have caused for the females.

In summary both older males and females consistently gave predominantly internal, unstable, controllable responses (e.g., immediate effort) following a team loss. They also consistently gave internal, unstable, uncontrollable attributions (e.g., mood) as the second most frequently responded to category following losses. Previous studies utilizing the three-dimensional model also found that older males and females gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions following losses (Gill et al., 1982; Mark et al., 1984; McAuley & Gross, 1983).

Attribution-Expectation Relationships

Hypothesis 7 states that both older and younger children who attribute a win to unstable causes will have a lower expectancy for future success than will those children who attribute the win to stable causes.

The Stability X Age X Sex X Outcome X Expectation loglinear analyses did not yield any significant results over the 10 games (Table 9 and Appendix Tables D-21 to D-30). Closer scrutiny of the contingency table made it clear that in many of the loglinear analyses empty cells or extremely small frequencies were encountered, thus negatively affecting the probability of finding significant results. The cell frequencies in the cumulative contingency table were small enough to rule out a game by game summary of the attribution-expectation results (Table 10). Despite the fact the independence assumption for the chi-square statistic was violated, chi-square analyses were performed on the cumulative data (i.e., data for all ten games pooled) in order to give a global view of the overall trends which were borne out of the game by game results.

According to the hypothesis, both the younger and older children should have lower expectancies for future success when they give unstable attributions for winning than when they give stable attributions for winning. Contrary to this hypothesis, regardless of the stability

Table 9

Summary of Loglinear Analysis for the Attribution and Expectations Hypotheses

	Game									
	1	2	3	4	5	6	7	8	9	10
Att X Age X Sex X Outcome X Expec										
Att X Age X Sex X Outcome										
Att X Age X Sex X Expectation										
Att X Age X Outcome X Expectation										
Att X Sex X Outcome X Expectation										
Age X Sex X Outcome X Expectation										
Att X Age X Sex							**			
Att X Age X Outcome										
Att X Sex X Outcome							**	**	**	
Age X Sex X Outcome	*					**		**	**	
Att X Age X Expectation										
Att X Sex X Expectation							*			
Age X Sex X Expectation	*									
Att X Outcome X Expectation										
Age X Outcome X Expectation						**			*	
Sex X Outcome X Expectation	*									
Att X Age					*					
Att X Sex		**		*		**	**			*
Age X Sex		**		**	**				**	**
Att X O	**		*	**	**		**			**
Age X Outcome		**	**	*	**	**		**		**
Sex X Outcome		*	*	**	*			**	*	**
Att X Expectation			*			**	*			
Age X Expectation	*			*			**		*	
Sex X Expectation				*		*				
Outcome X Expectation			**	**	**	**	**	**		**
Attribution	**	**	**	**	**	*	**	**	**	**
Age	**	**		*	**	*	**	**		**
Sex	*			**						**
Outcome	**					**		*	**	**
Expectation	**	**	**	**	**	**	**	**	**	**

Note. Expec = Expectation. Att = Attribution.

*p < .05. **p < .01.

Table 10

Cumulative Percent Responses of Young Group Locus of Stability Attributions by Expectations for Future Performance

	Win		Loss	
	Expectations		Expectations	
Locus of Stability	Yes	No	Yes	No
Stable	100.0 (43)	---	53.4 (31)	46.6 (27)
Unstable	97.6 (82)	2.4 (2)	73.9 (102)	26.1 (36)

Note. Frequencies in brackets

Cumulative Percent Responses of Old Group Locus of Stability Attributions by Expectations for Future Performance

	Win		Loss	
	Expectations		Expectations	
Locus of Stability	Yes	No	Yes	No
Stable	97.2 (141)	2.8 (4)	63.6 (14)	36.4 (8)
Unstable	97.6 (206)	2.4 (5)	90.6 (202)	9.4 (21)

Note. Frequencies in brackets

of the attributions for a win, children expected to win a subsequent game against a team which their team had just defeated. One hundred percent of the younger children and 97.2% of the older children who made stable attributions following a team win felt their team would win a subsequent game against the same opponent (Table 10). In addition, 97.6% of both the younger and older children who made unstable attributions following a team win felt their team would win a subsequent game against the same opponent (Table 10). The Expectation X Stability chi-square was not significant for either the younger or the older group following wins, thus indicating no difference between the expectations of those giving stable or unstable attributions. Based on these cumulative results, Hypothesis 7 was rejected as both the older and younger children who attributed a win to unstable causes did not have lower expectancies for future success than did those older and younger children who attributed the win to stable causes.

Even though these results were noticably one-sided, it was felt that examining the sex trends in the responses would add to the overall contribution of this study. Following stable attributions, 100.0% of the younger males, younger females and older females as well as 95.6% of the older males felt their team would win the next game against the same opponent (Table 11). Similar results were noted following unstable attributions as

Table 11

Cumulative Percent Responses of the Young Male and Female Stability-Expectation Relationship

	Young Group							
	Win				Loss			
	Male		Female		Male		Female	
	Yes	No	Yes	No	Yes	No	Yes	
Stable	100.00	--	100.00	--	64.7	35.3	48.8	51.2
	(11)		(32)		(11)	(6)	(20)	(21)
Unstable	90.9	9.1	100.00	--	86.2	13.8	63.0	37.0
	(20)	(2)	(62)		(56)	(9)	(46)	(27)

Cumulative Percent Responses of the Old Male and Female Stability-Expectation Relationship

	Old Group							
	Win				Loss			
	Male		Female		Male		Female	
	Yes	No	Yes	No	Yes	No	Yes	No
Stable	95.6	4.4	100.00	--	70.6	29.4	40.0	60.0
	(86)	(4)	(55)		(12)	(5)	(2)	(3)
Unstable	94.9	5.1	99.2	.8	90.6	9.4	90.5	9.5
	(75)	(4)	(133)	(1)	(145)	(15)	(57)	(6)

Note. Frequencies in brackets.

90.9% of the younger males, 100% of the younger females, 94.9% of the older males and 99.2% of the older females felt that their team would win a subsequent game against the same team (Table 11). Examination of the sex trends showed that regardless of the stability of the causal attribution, both the older and younger males and females expected to win the next game against the same opponent.

There was no support for Hypothesis 7 as the stability dimension had little impact on younger and older athletes' expectations for future winning/losing after a team win. Regardless of the stable or unstable nature of the causal attribution, both the younger and older children expected that they would win the subsequent game against the same opponent. This result contradicts previous findings from laboratory, non-sport achivement contexts (Frieze, 1981; Parsons & Ruble, 1977; Nesdale & Pope, 1985).

Perhaps the excitement of winning in a sport context results in positive expectations for future performance which is quite distinct from factors affecting expectations for future performance in laboratory situations. An alternate explanation for this divergent results might focus on the patterns of results over the season. Daughdrill (1978) has found that as children grow older, a consistent outcome (e.g., winning or losing) increasingly biases their future expectations. That is, losers expect to lose and winners expect to win. She suggests that older children consider all the relevant information they have available to them and attach more importance to consistent past experiences. The applicability of this explanation for the current results is discounted however, by the fact that regardless of overall team record individuals expected to win following a win. That is, whether they had a winning record or not, if they won the present game individuals expected that they would win again against the same opponent.

Hypothesis 8 states that both older and younger children who attribute a loss to stable attributions will have lower expectancies for future success than older and younger children who attribute the loss to unstable causes.

The Stability X Age X Sex X Outcome X Expectation loglinear analyses were the same ones calculated for Hypothesis 7 and no significant differences were noted over the ten game period (Table 9). The contingency results revealed that many empty cells or extremely small frequencies were encountered in the loglinear analyses, thus negatively affecting the chances of finding significant results. The cumulative contingency results were then referred to.

According to the hypothesis, both older and younger children who give stable attributions following a loss should have lower expectancies than both older and younger children who give unstable attributions following a loss. This pattern was true for both the younger and older children. Fifty-three percent of the younger children that gave stable attributions for a loss felt their team would win a subsequent game against the same opponent, while 46.6% who gave stable attributions for a loss felt their team would not win a subsequent game against the same opponent (Table 10). Conversely, 73.9% of the younger children who gave unstable attributions following a loss felt their team would win when they met the same opponent again, while 26.1% of the children who gave unstable attributions felt their team would not win if they played the same opponent (Table 10). The Expectation X Stability chi-square was significant following a loss ($\chi^2 = 6.93$, $p < .009$). That is, the younger children who made unstable attributions following a loss gave significantly more indications they would win a subsequent game against the same opponent than did those children who gave stable attributions following a loss.

Sixty-four percent of the older children who made stable attributions following a loss felt their team would win the next game against the same opponent, whereas 36.4% of the older children who made stable attributions following a team loss felt their team would not win the next game against the same opponent (Table

10). Ninety-one percent of the older children who made unstable attributions following a loss expected their team would win the next game against the same opponent, whereas only 9.4% of the older children who gave unstable attributions did not expect their team to win the next game (Table 10). Caution must be urged when interpreting these results, as the percentages are based on very low frequencies. The Expectation X Stability chi-square was significant following a loss ($\chi^2 = 11.47$, $p < .001$) (Table 10). That is, significantly more older children who gave unstable attributions also indicated they expected to win the next game than did those older children giving stable attributions.

Although the expectancies of both the younger and older children were much more positively biased than expected (i.e., high percentages expected to win the next game after a current loss), the results do support Weiner's (1984) contention that the stability of the causal attribution impacts upon the individual's expectations for future success in achievement settings.

A breakdown of the results for the two sexes revealed that both males and females expectancies for future outcomes were affected by the stability dimension of the attribution for a current outcome. Forty-nine percent of the young females who made stable attributions following a team loss felt their team would win the next game against the same opponent, while 51.2% felt it would lose (Table 11). Conversely, 63.0% of the young females who made unstable attributions following a loss felt their team would win the next game while 37.0% felt they would not (Table 11). There was also some differentiation between the expectancy for future success and the stability of the causal attribution in the young males. Sixty-five percent of those who made stable attributions following a loss felt their team would win the next game against the same opponent, while 35.3% felt they would lose (Table 11). Conversely, 86.2% of the young males who made unstable attributions following a team loss felt their team would win the next game against the same opponent, while 13.8% felt they would not. Thus, both younger males and females had a greater expectation for winning following a loss attributed to an unstable cause than after a loss attributed to a stable causal factor. In both cases, however, younger males expressed greater expectations for future winning than did younger females.

Similar trends were noted in the older male and female contingency results. Forty percent of the older females who gave stable attributions following a loss felt their team would win the subsequent game, while 60.0% felt their team would not win the next game against the same opponent (Table 11). On the other hand, 90.5% of the older females who gave unstable attributions following a loss felt their team would win the next game, while 9.5% thought it would lose (Table 11). Although it can be noted that the older females gave significantly more unstable than stable attributions following losses ($\chi^2 = 6.35$, $p < .01$), caution must be exercised in interpreting these results because of the small cell frequencies.

As was the case with the younger players, the older males also expressed greater win expectancies following unstable attributions for a current loss and they expressed greater expectancies than did older females following both stable and unstable attributions. Seventy-one percent of the older males who gave stable attributions following losses felt their team would win the next game played against the same opponent, while 29.4% felt it would not (Table 11). Conversely, 90.6% of the older males who gave unstable attributions following losses felt their team would win the next game against the same opponent, while 9.4% felt it would not (Table 11). The males also gave significantly more unstable than stable attributions following losses ($\chi^2 = 4.32$, $p < .04$).

There was support for Hypothesis 8 in that those children who gave stable attributions following a loss did have lower expectancies for future success than those children who gave unstable attributions following a loss. This result agrees with previous studies in non-sport contexts (Frieze, 1981; Parsons & Ruble, 1977; Nesdale & Pope, 1985). The most revealing result was that the younger groups' expectations for future success seemed to be more affected by the stability of the causal attributions than was the older groups. This result was not expected and appears to suggest that, contrary to Weiner's (1984) contention, children as young as eight to eleven years old are capable of linking the locus of stability to expectations for future success. It is interesting, however, that this only occurred following a loss. This difference occurred despite the fact that over the first ten games, the younger and older groups experienced different win/loss records. This may indicate that in the sport context the excitement of the win may lead to excitement and expectancies that override the influences of causal attributions. This might relate to Weiner's identification of three sources of influence on affect (e.g., Weiner, 1979, p. 14), especially where emotions are thought to be tied directly to outcome.

The gender breakdowns yielded even more startling findings. The younger and older females expectations for future success appeared to be more adversely affected following stable attributions for a team loss than were the younger and older males. It is informative to note that the similar effects of stability of attribution for a loss upon future success expectancy was consistent across age and sex groups despite quite different overall win/loss records for different teams. The young males and females both experienced more losses than wins over the first ten games of the season. In fact, both the Petite Team 2 girls and the Atom Team 1 boys lost all ten games, while the older males experienced more losses than did the older females over the first ten games of the season (Appendix B). Thus, these attributional stability effects on expectancies for future success appear to be very robust.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Summary

The purposes of this study were: to examine the effects of age and sex upon children's causal attributions for game outcomes over the first ten games of a youth sport season; to examine the effect of age and sex on the interrelationship between causal attributions for past outcomes and subsequent expectations for future performance success; to examine whether or not utilizing Weiner's three-dimensional model could extend the current understanding of childrens' causal attributions beyond the original two-dimensional model.

Seventy-five female ringette players (ages 8-14) and 93 male hockey players (ages 8-15) were followed for the first 10 games of the youth sport season. The players were given short questionnaires to complete prior to and after each game. Although many questions were asked, this study focused on the young athletes' responses to two questions: "Why do you think your team won/lost the game today?" and "If you played the same team again, do you think your team would win?" Responses to the attribution question (first question) were coded verbatim and then sorted, once for each of the three dimensions of Weiner's (1979) revised attributional model. Two raters completed the sorting process; over an 83 percent agreement was attained for all three dimensions. Responses to the expectation question (second question) were coded either "Yes" or "No".

Separate loglinear analyses were completed for each game of the season for both the three-dimensional and two-dimensional achievement motivation models. These were used to examine the relationships between causal attributions, age, sex and outcome factors hypothesized to have an impact on the athletes' attributional responses. Because this was a field study, no control could be exerted on the game outcome or on the number of participants present for each of the games. This greatly curtailed the effectiveness of utilizing the more stringent log-linear analysis. Therefore, the game by game contingency tables were used extensively to test the hypotheses.

With respect to winning it was found that:

(a) Both younger and older females gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions following a team win.

(b) The younger males gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions while the older males gave predominantly internal, stable, controllable (e.g., typical effort) attributions following a team win.

With respect to losing it was found that:

(a) The young females gave predominantly internal, unstable, uncontrollable (e.g., mood) and external, stable, uncontrollable (e.g., task difficulty) attributions, while the older females gave predominantly internal, unstable, controllable (e.g., immediate effort) and internal, unstable, uncontrollable (e.g., mood) attributions following a team loss.

(b) Both younger and older males gave predominantly internal, unstable, controllable (e.g., immediate effort) attributions following a team loss. Hence, overall the males gave more controllable attributions for losses than did females.

With respect to the causal attribution-expectation for future success relationship:

(a) Following a win both younger and older males and younger and older females had high expectations for future performance, regardless of the stable/unstable nature of the causal attribution for a previous win.

(b) Following a loss, for both younger and older males and females, unstable attributions led to higher expectations for future success than did stable attributions. In addition, males reported higher expectations for future winning following a losing outcome than did females.

Conclusions, Implications and Recommendations

Weiner's revised three-dimensional model was useful in classifying and interpreting the attributions of young sport participants in this study. The insights gained have both theoretical and practical implications.

The first result to note was that no causal attributions fell in the external, stable, controllable or the external, unstable, controllable cells of the attribution model. This finding confirms Weiner's concerns (e.g., Weiner, 1979, 1983, 1984) and those of two previous studies which used the same questioning and rating procedures as the current study (Gill et al., 1982; Riordan et al., 1985). This finding adds further weight in support of deletion of the external, controllable cells of the three-dimensional model in subsequent investigations of causal attributions in sport contexts.

The second finding was the noticable decrease in the importance of ability-type attributions with the addition of the stable effort-type of attributions in the three-dimensional model. The demonstrated effectiveness of the control dimension of the expanded model in classifying causal attributions has important implications for future studies examining the causal attributions of sport participants. The reported importance of ability attributions in past research on youth sport participants utilizing the two-dimensional model was brought into question. Because the revised model appears to clarify the nature of the causal attributions, it was suggested that future research in this area utilize Weiner's revised three-dimensional model.

Third, the open-ended question format utilized in this study yielded a wide variety of causal attributions from the young sport participants (see Appendix B). In view of the fact that 96 different responses were received from the young participants, it seems overly restrictive and forced to utilize a closed-question research design, even though some researchers have advocated such an approach because they consider it to have increased objectivity (e.g., McAuley & Gross, 1983; Russell, 1982). Therefore, it was recommended that future studies in this area would be enhanced by utilizing the open-ended question format rather than the closed-ended approach.

Fourthly, this study demonstrated a link between stable attributions following losses and lower expectancies for future success for all participant groups, males and females, young and old. This link confirmed Weiner's proposition that giving stable attributions following failure on an achievement task would decrease expectancies for future success (Weiner, 1979; Weiner et al., 1972). This finding also helped fill the attribution-expectation relationship void that exists in the sport attribution literature (Rejeski & Brawley, 1983). An unexpected finding was that the attribution-expectation link was inoperative following wins. That is, regardless of the stable/unstable nature of the causal attributions given following wins, both younger and older males and females expected to win the next game against the same opponent. Future research examining the attribution-expectation link in both younger and older athletes is required to determine whether this result will hold with other sport groups or was unique to the sample and/or context of this study.

Fifthly, a significant finding of the study was the observed stability in the attributions given over a series of games. This was the first season-long study to examine how youth sport participants attribute cause for game outcomes and it revealed the relative stability with which young athletes make causal attributions following wins and losses. It remains to be seen whether these results will be replicated by future season-long studies in different youth sport contexts.

Sixth, young females tended to give predominantly internal, unstable, uncontrollable (e.g., mood) attributions following losses. From a coaching perspective, it would be advisable to instill in young girls that they are capable of exerting some control over the outcome. They should be encouraged to try as hard as they can and be made to feel that they are in control of the amount of effort they exert.

Seventh, it is important to reiterate the practical importance of the apparent link between stable attributions following losses and lowered expectations for future success. If at all possible, coaches should encourage and guide their players to attribute losses to unstable causes. Use of unstable attributions should leave room for personal and team improvement in future contests. Future research must address the possible link between stable attributions following losses, lowered expectancies for future success, and dropping out of youth sport.

Throughout this study male and female attributional patterns were compared. When the females differed from the males the discussion focused on the females seemingly debilitating attributional patterns (e.g., following wins). To date, no research has focused on the issue that achievement oriented attributional patterns (often exhibited by males) are not necessarily better than less achievement oriented patterns (often exhibited by females). Perhaps the goal-orientations of the groups differed. In order to identify self-enhancing and self-debilitating attributional patterns, future research should collect both the goal-orientations and the causal attributions of the participants.

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Appendix A

Copies of the Pre-Game and Post-Game Questionnaires

PRE-GAME QUESTIONNAIRE

Code #: __________ Name: ____ Date: __________

Before you start the game today, we want to ask you a few questions. They won't take long so please answer them as completely and honestly as you can.

****

1. Directions: Mark the answer which seems to describe your feelings at this very moment.

	Not At All	Somewhat	Moderately So	Very Much So
I feel calm	________	________	________	________
I feel relaxed	________	________	________	________
I am worried	________	________	________	________
I feel sure	________	________	________	________
I feel rested	________	________	________	________
I feel scared	________	________	________	________
I am nervous	________	________	________	________
I feel pleasant	________	________	________	________
I am jittery	________	________	________	________
I feel frightened	________	________	________	________

2. How much choice did you have in coming today?

1) None ______ 2) A little ______ 3) Some ______ 4) Pretty much ______ 5) Very much ______

3. Were there other things available that you wanted to do?

1) YES ______ 2) NO ______

4. Would you have come even if you didn't have to?

1) YES ______ 2) NO ______

5. Describe your mood RIGHT NOW:

	Very	Quite	Some	Neither	Some	Quite	Very	
Alert	___	___	___	___	___	___	___	Drowsy
Happy	___	___	___	___	___	___	___	Sad
Irritable	___	___	___	___	___	___	___	Cheerful
Strong	___	___	___	___	___	___	___	Weak
Angry	___	___	___	___	___	___	___	Friendly
Active	___	___	___	___	___	___	___	Passive
Lonely	___	___	___	___	___	___	___	Sociable
Detached	___	___	___	___	___	___	___	Involved
Free	___	___	___	___	___	___	___	Constraine
Excited	___	___	___	___	___	___	___	Bored
Confused	___	___	___	___	___	___	___	Clear

6. How well do you think you will play in the game today?

Not well at all						Very Well
1	2	3	4	5	6	7

Why do you feel this way? ______________________________

____

7. How sure are you that your team will win the game today?

Not sure at all						Very sure
1	2	3	4	5	6	7

8. Is there anything at all that worries you about playing in the game today?

1) YES ___ 2) NO ___

If YES, what worries you? ______________________________

____

POST-GAME QUESTIONNAIRE

Code #: ________ Name: ____ Date: ____________________

****

1. Directions: Mark the answer which seems to describe your feelings at this very moment.

	Not At All	Somewhat	Moderately So	Very Much So
I feel calm				
I feel relaxed				
I am worried				
I feel sure				
I feel rested				
I feel scared				
I am nervous				
I feel pleasant				
I am jittery				
I feel frightened				

2. On a scale from 1 to 7 rate how you feel about the following statements:

(a) How much fun did you have in the game today?

No fun at all ... A lot of fun

1 2 3 4 5 6 7

(b) How well did you play in the game today?

Not well at all ... Very well

1 2 3 4 5 6 7

(c) How much was at stake for you in the game today?

Nothing ... A great deal

1 2 3 4 5 6 7

(d) How challenging was the game today?

Not at all challenging ... Very challenging

1 2 3 4 5 6 7

3. Compared to other players on your team, how much playing time did you get today?

Less than others ________ Same as others ________ More than others ________

4. Describe your mood RIGHT NOW:

	Very	Quite	Some	Neither	Some	Quite	Very	
Alert	___	___	___	___	___	___	___	Drowsy
Happy	___	___	___	___	___	___	___	Sad
Irritable	___	___	___	___	___	___	___	Cheerful
Strong	___	___	___	___	___	___	___	Weak
Angry	___	___	___	___	___	___	___	Friendly
Active	___	___	___	___	___	___	___	Passive
Lonely	___	___	___	___	___	___	___	Sociable
Detached	___	___	___	___	___	___	___	Involved
Free	___	___	___	___	___	___	___	Constrained
Excited	___	___	___	___	___	___	___	Bored
Confused	___	___	___	___	___	___	___	Clear

5. Did anything outstanding happen in today's game that made it:

a) more enjoyable? 1) YES ___ 2) NO ___

If YES, what? ____

____

b) less enjoyable? 1) YES ___ 2) NO ___

If YES, what? ____

____

6. Why do you think your team won/lost the game today?

____

____

7. If you played the same team again, do you think your team would win?

1) YES ___ 2) NO ___ Why? ________________________________

____

Appendix B

Comprehensive List of the Causal Attributions Made by Young Athletes and the Categorization of These Attributions into the Appropriate Dimensions

	Dimensional Categories		
Attributions	Causality (Int-Ext)	Stability (Sta-Uns)	Controllability (Con-Uncon)
01 = It was our first game of the season	Int	Uns	Uncon
02 = I do not know	Int	Uns	Uncon
03 = I'm sort of upset	Int	Uns	Uncon
04 = Because we were missing the puck	Int	Uns	Con
05 = The other team worked harder	Ext	Uns	Uncon
06 = We needed more practices	Int	Uns	Uncon
07 = I feel like we won but we didn't	Int	Uns	Uncon
08 = The whole team was rusty	Int	Uns	Uncon
09 = We haven't played before	Int	Uns	Uncon
10 = The other team had better players	Ext	Sta	Uncon
11 = Because of me (goalie)	Int	Uns	Uncon
12 = We didn't play very well	Int	Uns	Con
13 = That (team) is the best in the league	Ext	Sta	Uncon
14 = Because we played-worked hard	Int	Uns	Con
15 = Because we were better	Int	Sta	Con
16 = Becase that was an easy team	Ext	Sta	Uncon
17 = Because we are good	Int	Sta	Con
18 = Because it was fun	Ext	Uns	Uncon
19 = We won because we practised	Int	Uns	Con
20 = Because we played very well	Int	Uns	Con
21 = Because we passed	Int	Sta	Con

Appendix B cont'd

Attributions	Causality (Int-Ext)	Stability (Sta-Uns)	Controllability (Con-Uncon)
	Dimensional Categories		
22 = Because we're lucky	Int	Uns	Uncon
23 = Because I feel free	Int	Uns	Uncon
24 = Some of the kids on our team aren't good	Int	Sta	Con
25 = The other team has older players	Ext	Sta	Uncon
26 = Because we were playing a hard team	Ext	Sta	Uncon
27 = Our goalie wasn't with it	Int	Uns	Uncon
28 = We didn't pass	Int	Uns	Con
29 = Other team was pushy/rough/tough	Ext	Uns	Uncon
30 = Didn't try hard enough	Int	Uns	Con
31 = We could of got 2 more goals but we missed	Int	Uns	Con
32 = Because they shoot better	Ext	Sta	Uncon
33 = Because we worked together	Int	Uns	Con
34 = Because our center forward is a good player	Int	Sta	Uncon
35 = Because of our hustle	Int	Uns	Con
36 = Because we didn't give up	Int	Uns	Con
37 = No teamwork	Int	Uns	Con
38 = Referee (poor job)	Ext	Uns	Uncon
39 = Opposition cheat and are too rough	Ext	Uns	Uncon
40 = We had fewer number of players	Int	Uns	Uncon
41 = Because the other team didn't play well	Ext	Uns	Uncon
42 = Because I played bad	Int	Uns	Uncon

Appendix B cont'd

Attributions	Causality (Int-Ext)	Stability (Sta-Uns)	Controllability (Con-Uncon)
	Dimensional Categories		
43 = We lost by a fluke	Ext	Uns	Uncon
44 = Because I was there	Int	Sta	Con
45 = Because we woke up very early this morning	Int	Uns	Uncon
46 = Because we did good	Int	Uns	Con
47 = We concentrated well	Int	Uns	Con
48 = We were more determined and more disciplined	Int	Uns	Con
49 = We improved a lot since we played the team last	Int	Uns	Con
50 = Because we wanted to win	Int	Uns	Con
51 = We were angry	Int	Uns	Uncon
52 = Very near the end we gave up	Int	Uns	Uncon
53 = Our minds were not on the game	Int	Uns	Con
54 = We didn't skate hard enough	Int	Uns	Con
55 = We got it together too late	Int	Uns	Uncon
56 = We got so many penalties	Int	Uns	Uncon
57 = We were very relaxed and rested	Int	Uns	Con
58 = Its the beginning of the year and the goalies haven't played much yet	Ext	Uns	Uncon
59 = We skate faster than the other team	Int	Sta	Con
60 = This is the other teams first game	Ext	Uns	Uncon
61 = We had a good goalie	Int	Sta	Uncon

Appendix B cont'd

	Dimensional Categories		
Attributions	Causality (Int-Ext)	Stability (Sta-Uns)	Controllability (Con-Uncon)
62 = We weren't hurrying back to our net	Int	Uns	Con
63 = They scored more goals	Ext	Uns	Uncon
64 = We will play better	Int	Sta	Uncon
65 = They were lucky	Ext	Uns	Uncon
66 = We never passed	Int	Uns	Con
67 = We didn't want to win	Int	Uns	Con
68 = Some people on our team were not playing their best, as usual	Int	Sta	Uncon
69 = We didn't check the other team enough	Int	Uns	Con
70 = We were tired	Int	Uns	Uncon
71 = The other teams goalie was good	Ext	Sta	Uncon
72 = Our defence isn't working	Int	Uns	Con
73 = We won (beat) that team before	Int	Sta	Uncon
74 = We came back strong	Int	Uns	Con
75 = We revived ourselves in the second (half)	Int	Uns	Con
76 = They outskated us	Ext	Sta	Uncon
77 = We had a few bad breaks	Int	Uns	Uncon
78 = We lost because we ran out of time	Ext	Uns	Uncon
79 = We didn't take enough shots	Int	Uns	Con
80 = Because the power play got tired	Int	Uns	Con
81 = We checked good	Int	Uns	Con
82 = We tied because both teams played good	Int	Uns	Uncon
83 = Didn't hustle /no intensity	Int	Uns	Con

Appendix B cont'd

	Dimensional Categories		
Attributions	Causality (Int-Ext)	Stability (Sta-Uns)	Controllability (Con-Uncon)
84 = Other team take too many penalties	Ext	Uns	Uncon
85 = We had to win or tie for first	Int	Sta	Uncon
86 = Because we wanted a physical fight	Int	Uns	Con
87 = We just couldn't score	Int	Uns	Uncon
88 = We shot	Int	Sta	Con
89 = No pride, poor attitude	Int	Sta	Uncon
90 = We had more people	Int	Sta	Con
91 = We scored more points than them	Int	Uns	Uncon
92 = We intimidated them because we're big	Int	Sta	Con
93 = They (opposition) change goalies	Ext	Uns	Uncon
94 = We were unlucky	Int	Uns	Uncon
95 = Because we don't know the rules too well	Int	Uns	Con
96 = We always lose	Int	Sta	Uncon

Appendix C

Summary of Ringette and Hockey Win-Loss Records over the First Ten Games of the Season

Ringette Win-Loss Record

	Game									
Team	1	2	3	4	5	6	7	8	9	10
Petite Team 1	W	W	W	W	L	W	W	L	W	W
Petite Team 2	L	L	L	L	L	L	L	L	L	L
Tween Team 1	L	L	L	L	W	L	L	W	L	W
Tween Team 2	T	L	L	T	L	W	W	W	W	W
Junior Belle Team 1	W	W	W	W	W	W	W	W	W	W
Junior Belle Team 2	L	W	W	W	W	L	L	W	T	W

Note: W = Win; L = Loss; T = Tie

Hockey Win-Loss Record

	Game									
Team	1	2	3	4	5	6	7	8	9	10
Atom Team 1	L	L	L	L	-[a]	L	L	L	L	T
Atom Team 2	W	L	L	W	T	L	W	W	W	L
Pee Wee Team 1	L	W	T	L	W	W	L	L	L	W
Pee Wee Team 2	W	W	T	W	W	W	W	L	W	L
Bantam Team 1	L	L	L	W	L	W	W	L	W	W
Bantam Team 2	L	L	W	L	L	T	L	L	L	L

Note: W = Win; L = Loss; T = Tie

[a] The post-game results were not collected for this game.

Appendix D

Loglinear Analysis Tables for the First Ten Games of the Season

Table D-1

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 1

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	1	2.56	.11
Att X Sex X Outcome	5	8.23	.14
Att X Sex X Age	5	6.63	.25
Att X Outcome X Age	5	1.53	.91
Sex X Outcome X Age	1	.15	.70
Att X Sex	5	14.57	.01
Att X Outcome	5	48.61	.00
Sex X Outcome	1	6.23	.01
Att X Age	5	12.41	.03
Sex X Age	1	.28	.60
Outcome X Age	1	2.67	.10
Attribution	5	126.85	.00
Sex	1	5.034	.02
Outcome	1	5.88	.02
Age	1	8.82	.00

Table D-2

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 2

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	4	.08	.999
Att X Sex X Outcome	5	.76	.980
Att X Sex X Age	5	9.61	.087
Att X Outcome X Age	5	.29	.998
Sex X Outcome X Age	1	7.66	.006
Att X Sex	5	15.67	.008
Att X Outcome	5	42.08	.000
Sex X Outcome	1	2.56	.110
Att X Age	5	4.14	.530
Sex X Age	1	3.61	.058
Outcome X Age	1	12.39	.000
Attribution	5	147.84	.000
Sex	1	.58	.445
Outcome	1	.00	.995
Age	1	8.29	.004

Table D-3

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 3

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	0	.00	1.000
Att X Sex X Outcome	5	3.40	.638
Att X Sex X Age	5	3.89	.565
Att X Outcome X Age	5	2.33	.802
Sex X Outcome X Age	1	2.96	.085
Att X Sex	5	14.34	.014
Att X Outcome	5	38.24	.000
Sex X Outcome	1	16.62	.000
Att X Age	5	5.60	.347
Sex X Age	1	.57	.452
Outcome X Age	1	12.79	.000
Attribution	5	88.44	.000
Sex	1	3.40	.065
Outcome	1	2.05	.152
Age	1	4.20	.041

Table D-4

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 4

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	2	7.06	.029
Att X Sex X Outcome	5	7.039	.218
Att X Sex X Age	5	1.58	.904
Att X Outcome X Age	5	.70	.983
Sex X Outcome X Age	1	.02	.880
Att X Sex	5	12.15	.033
Att X Outcome	5	59.33	.000
Sex X Outcome	1	14.15	.000
Att X Age	5	1.79	.877
Sex X Age	1	9.81	.002
Outcome X Age	1	1.55	.213
Attribution	5	55.08	.000
Sex	1	8.52	.004
Outcome	1	.10	.748
Age	1	7.29	.007

Table D-5

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 5

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	1	.08	.779
Att X Sex X Outcome	5	3.35	.647
Att X Sex X Age	5	.35	.997
Att X Outcome X Age	5	.35	.997
Sex X Outcome X Age	1	.28	.597
Att X Sex	5	3.52	.620
Att X Outcome	5	37.38	.000
Sex X Outcome	1	7.13	.008
Att X Age	5	6.68	.246
Sex X Age	1	19.16	.000
Outcome X Age	1	24.08	.000
Attribution	5	72.11	.000
Sex	1	.68	.409
Outcome	1	.68	.409
Age	1	38.50	.000

Table D-6

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 6

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	0	.18	1.000
Att X Sex X Outcome	5	.49	.993
Att X Sex X Age	5	.24	.999
Att X Outcome X Age	5	.34	.997
Sex X Outcome X Age	1	22.38	.000
Att X Sex	5	17.02	.004
Att X Outcome	5	17.66	.003
Sex X Outcome	1	.16	.690
Att X Age	5	12.29	.031
Sex X Age	1	.07	.791
Outcome X Age	1	4.07	.044
Attribution	5	78.01	.000
Sex	1	.05	.832
Outcome	1	8.86	.003
Age	1	6.48	.011

Table D-7

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 7

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	1	2.81	.094
Att X Sex X Outcome	5	1.42	.922
Att X Sex X Age	5	13.64	.018
Att X Outcome X Age	5	.11	.999
Sex X Outcome X Age	1	1.46	.227
Att X Sex	5	14.56	.012
Att X Outcome	5	60.33	.000
Sex X Outcome	1	.97	.324
Att X Age	5	23.89	.000
Sex X Age	1	6.65	.001
Outcome X Age	1	6.44	.011
Attribution	5	67.44	.000
Sex	1	.16	.686
Outcome	1	.00	.990
Age	1	9.33	.002

Table D-8

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 8

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	1	.08	.777
Att X Sex X Outcome	5	.39	.996
Att X Sex X Age	5	1.17	.948
Att X Outcome X Age	5	.65	.986
Sex X Outcome X Age	1	9.86	.002
Att X Sex	5	23.36	.000
Att X Outcome	5	54.32	.000
Sex X Outcome	1	52.45	.000
Att X Age	5	4.25	.514
Sex X Age	1	3.64	.056
Outcome X Age	1	3.42	.064
Attribution	5	113.64	.000
Sex	1	1.00	.317
Outcome	1	5.82	.016
Age	1	9.14	.003

Table D-9

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 9

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	0	.06	1.000
Att X Sex X Outcome	5	.16	.999
Att X Sex X Age	5	.24	.999
Att X Outcome X Age	5	3.60	.608
Sex X Outcome X Age	1	6.66	.010
Att X Sex	5	6.31	.278
Att X Outcome	5	46.33	.000
Sex X Outcome	1	1.24	.266
Att X Age	5	8.07	.152
Sex X Age	1	8.62	.003
Outcome X Age	1	.04	.849
Attribution	5	49.73	.000
Sex	1	.76	.382
Outcome	1	9.52	.002
Age	1	3.89	.049

Table D-10

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses - Game 10

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	0	.00	1.000
Att X Sex X Outcome	5	.59	.989
Att X Sex X Age	5	.38	.996
Att X Outcome X Age	5	.39	.996
Sex X Outcome X Age	1	.97	.324
Att X Sex	5	1.53	.910
Att X Outcome	5	31.64	.000
Sex X Outcome	1	19.96	.000
Att X Age	5	10.36	.066
Sex X Age	1	29.43	.000
Outcome X Age	1	12.81	.000
Attribution	5	31.94	.000
Sex	1	2.66	.103
Outcome	1	5.24	.022
Age	1	7.46	.006

Table D-11

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 1

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	2.62	.454
Att X Sex X Outcome	3	.41	.939
Att X Sex X Age	3	2.64	.451
Att X Outcome X Age	3	1.91	.591
Sex X Outcome X Age	1	.42	.519
Att X Sex	3	7.61	.055
Att X Outcome	3	41.73	.000
Sex X Outcome	1	4.09	.043
Att X Age	3	9.08	.028
Sex X Age	1	.41	.525
Outcome X Age	1	3.96	.047
Attribution	3	122.59	.000
Sex	1	5.03	.025
Outcome	1	5.88	.015
Age	1	8.82	.003

Note. Att = Attribution

Table D-12

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 2

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.44	.933
Att X Sex X Outcome	3	.00	1.000
Att X Sex X Age	3	.67	.881
Att X Outcome X Age	3	.00	1.000
Sex X Outcome X Age	1	4.15	.042
Att X Sex	3	14.20	.003
Att X Outcome	3	32.90	.000
Sex X Outcome	1	4.57	.033
Att X Age	3	3.91	.272
Sex X Age	1	3.94	.047
Outcome X Age	1	12.58	.000
Attribution	3	137.47	.000
Sex	1	.58	.445
Outcome	1	.00	.997
Age	1	8.29	.004

Note. Att = Attribution

Table D-13

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 3

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.00	1.000
Att X Sex X Outcome	3	2.94	.401
Att X Sex X Age	3	.89	.828
Att X Outcome X Age	3	.91	.823
Sex X Outcome X Age	1	1.50	.221
Att X Sex	3	5.28	.152
Att X Outcome	3	22.82	.000
Sex X Outcome	1	10.44	.001
Att X Age	3	5.49	.139
Sex X Age	1	.46	.497
Outcome X Age	1	14.22	.000
Attribution	3	93.67	.000
Sex	1	3.40	.065
Outcome	1	2.05	.152
Age	1	4.20	.041

Note. Att = Attribution

Table D-14

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 4

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	5.27	.153
Att X Sex X Outcome	3	3.35	.341
Att X Sex X Age	3	1.96	.581
Att X Outcome X Age	3	.70	.874
Sex X Outcome X Age	1	.30	.582
Att X Sex	3	7.32	.062
Att X Outcome	3	38.07	.000
Sex X Outcome	1	11.12	.001
Att X Age	3	.77	.857
Sex X Age	1	12.80	.000
Outcome X Age	1	3.32	.069
Attribution	3	76.37	.000
Sex	1	8.52	.004
Outcome	1	.10	.748
Age	1	7.29	.007

Note. Att = Attribution

Table D-15

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 5

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.37	.947
Att X Sex X Outcome	3	2.87	.413
Att X Sex X Age	3	.06	.996
Att X Outcome X Age	3	.05	.998
Sex X Outcome X Age	1	.00	1.000
Att X Sex	3	2.74	.433
Att X Outcome	3	25.07	.000
Sex X Outcome	1	7.65	.006
Att X Age	3	4.49	.214
Sex X Age	1	19.99	.000
Outcome X Age	1	23.87	.000
Attribution	3	68.37	.000
Sex	1	.68	.409
Outcome	1	.68	.409
Age	1	38.50	.000

Note. Att = Attribution

Table D-16

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 6

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.00	.999
Att X Sex X Outcome	3	.56	.906
Att X Sex X Age	3	.00	1.000
Att X Outcome X Age	3	.12	.989
Sex X Outcome X Age	1	21.60	.000
Att X Sex	3	16.93	.001
Att X Outcome	3	12.68	.005
Sex X Outcome	1	.26	.610
Att X Age	3	8.67	.034
Sex X Age	1	.04	.852
Outcome X Age	1	8.44	.004
Attribution	3	45.52	.000
Sex	1	.04	.833
Outcome	1	8.86	.003
Age	1	6.48	.011

Note. Att = Attribution

Table D-17

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 7

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.04	.998
Att X Sex X Outcome	3	.05	.997
Att X Sex X Age	3 5	15.95	.001
Att X Outcome X Age	3	.01	.999
Sex X Outcome X Age	1	7.16	.008
Att X Sex	3	12.77	.005
Att X Outcome	3	47.54	.000
Sex X Outcome	1	1.03	.311
Att X Age	3	12.97	.005
Sex X Age	1	9.32	.002
Outcome X Age	1	2.19	.139
Attribution	3	82.67	.000
Sex	1	.16	.686
Outcome	1	.00	1.000
Age	1	9.33	.002

Note. Att = Attribution

Table D-18

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 8

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.38	.945
Att X Sex X Outcome	3	.06	.997
Att X Sex X Age	3	.86	.835
Att X Outcome X Age	3	.49	.922
Sex X Outcome X Age	1	10.42	.001
Att X Sex	3	22.98	.000
Att X Outcome	3	47.66	.000
Sex X Outcome	1	54.76	.000
Att X Age	3	4.09	.252
Sex X Age	1	3.64	.056
Outcome X Age	1	3.85	.050
Attribution	3	93.44	.000
Sex	1	1.00	.317
Outcome	1	5.82	.016
Age	1	9.14	.003

Note. Att = Attribution

Table D-19

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model)-Game 9

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.02	.999
Att X Sex X Outcome	3	.00	1.000
Att X Sex X Age	3	.00	1.000
Att X Outcome X Age	3	2.55	.467
Sex X Outcome X Age	1	7.18	.007
Att X Sex	3	4.48	.214
Att X Outcome	3	36.69	.000
Sex X Outcome	1	3.32	.068
Att X Age	3	6.10	.107
Sex X Age	1	9.89	.002
Outcome X Age	1	.04	.848
Attribution	3	56.96	.000
Sex	1	.76	.382
Outcome	1	9.51	.002
Age	1	3.89	.049

Note. Att = Attribution

Table D-20

Loglinear Analysis for Age, Sex and Outcome Differences in Attributional Responses (Two-Dimensional Model) - Game 10

Effect	df	Chi-square	p
Att X Age X Sex X Outcome	3	.00	1.000
Att X Sex X Outcome	3	.63	.890
Att X Sex X Age	3	.25	.970
Att X Outcome X Age	3	.00	1.000
Sex X Outcome X Age	1	.80	.372
Att X Sex	3	1.57	.666
Att X Outcome	3	27.91	.000
Sex X Outcome	1	21.80	.000
Att X Age	3	2.14	.543
Sex X Age	1	31.35	.000
Outcome X Age	1	14.66	.000
Attribution	3	24.54	.000
Sex	1	2.66	.103
Outcome	1	5.24	.022
Age	1	7.46	.006

Note. Att = Attribution

Table D-21

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 1

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Outcome X Age	1	.94	.332
Stable X Sex X Outcome X Expec	1	.00	.956
Stable X Sex X Age X Expec	1	.00	.952
Stable X Outcome X Age X Expec	1	.00	.977
Sex X Outcome X Age X Expec	1	.00	.965
Stable X Sex X Outcome	1	4.90	.027
Stable X Sex X Age	1	1.61	.204
Stable X Outcome X Age	1	3.50	.062
Sex X Outcome X Age	1	.36	.548
Stable X Sex X Expec	1	.06	.810
Stable X Outcome X Expec	1	.00	.948
Sex X Outcome X Expec	1	4.30	.038
Stable X Age X Expec	1	.01	.933
Sex X Age X Expec	1	6.06	.014
Outcome X Age X Expec	1	.52	.472
Stable X Sex	1	.71	.401
Stable X Outcome	1	10.22	.001
Sex X Outcome	1	.43	.512
Stable X Age	1	2.76	.097
Sex X Age	1	.00	.956
Outcome X Age	1	2.38	.123
Stable X Expec	1	.00	1.000
Sex X Expec	1	.24	.627
Outcome X Expec	1	1.34	.247
Age X Expec	1	3.98	.046
Stable	1	53.99	.000
Sex	1	5.58	.018
Outcome	1	6.48	.011
Age	1	7.45	.006
Expec	1	95.22	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-22

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 2

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.16	.691
Stable X Sex X Outcome X Age	1	1.03	.311
Stable X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Age X Expec	1	.37	.542
Stable X Outcome X Age X Expec	1	.11	.736
Sex X Outcome X Age X Expec	1	.01	.934
Stable X Sex X Outcome	1	.61	.436
Stable X Sex X Age	1	.43	.513
Stable X Outcome X Age	1	.37	.545
Sex X Outcome X Age	1	.55	.459
Stable X Sex X Expec	1	.85	.358
Stable X Outcome X Expec	1	.35	.556
Sex X Outcome X Expec	1	1.02	.312
Stable X Age X Expec	1	3.37	.066
Sex X Age X Expec	1	1.11	.293
Outcome X Age X Expec	1	.04	.850
Stable X Sex	1	7.75	.005
Stable X Outcome	1	1.96	.162
Sex X Outcome	1	4.56	.033
Stable X Age	1	2.37	.124
Sex X Age	1	9.03	.003
Outcome X Age	1	16.54	.000
Stable X Expec	1	1.81	.178
Sex X Expec	1	1.74	.187
Outcome X Expec	1	16.91	.000
Age X Expec	1	.03	.865
Stable	1	33.55	.000
Sex	1	.61	.437
Outcome	1	.15	.698
Age	1	8.61	.003
Expec	1	56.99	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-23

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 3

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Outcome X Age	1	.00	1.000
Stable X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Age X Expec	1	.32	.575
Stable X Outcome X Age X Expec	1	.38	.536
Sex X Outcome X Age X Expec	1	.00	1.000
Stable X Sex X Outcome	1	.03	.854
Stable X Sex X Age	1	.00	1.000
Stable X Outcome X Age	1	1.88	.170
Sex X Outcome X Age	1	2.64	.104
Stable X Sex X Expec	1	.77	.380
Stable X Outcome X Expec	1	.00	1.000
Sex X Outcome X Expec	1	.00	1.000
Stable X Age X Expec	1	.00	1.000
Sex X Age X Expec	1	1.42	.234
Outcome X Age X Expec	1	.00	1.000
Stable X Sex	1	1.40	.237
Stable X Outcome	1	4.08	.043
Sex X Outcome	1	6.44	.011
Stable X Age	1	2.98	.084
Sex X Age	1	.44	.509
Outcome X Age	1	15.74	.000
Stable X Expec	1	5.71	.017
Sex X Expec	1	.23	.630
Outcome X Expec	1	12.82	.000
Age X Expec	1	1.32	.250
Stable	1	31.20	.000
Sex	1	4.38	.036
Outcome	1	1.57	.210
Age	1	3.55	.060
Expec	1	68.61	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-24

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 4

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Outcome X Age	1	.00	.923
Stable X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Age X Expec	1	.00	1.000
Stable X Outcome X Age X Expec	1	.00	1.000
Sex X Outcome X Age X Expec	1	.00	.982
Stable X Sex X Outcome	1	.64	.424
Stable X Sex X Age	1	.83	.363
Stable X Outcome X Age	1	.01	.941
Sex X Outcome X Age	1	.08	.773
Stable X Sex X Expec	1	.00	.980
Stable X Outcome X Expec	1	.00	.990
Sex X Outcome X Expec	1	.00	1.000
Stable X Age X Expec	1	.00	1.000
Sex X Age X Expec	1	.40	.529
Outcome X Age X Expec	1	.00	.976
Stable X Sex	1	5.65	.017
Stable X Outcome	1	19.51	.000
Sex X Outcome	1	12.85	.000
Stable X Age	1	.10	.750
Sex X Age	1	12.88	.000
Outcome X Age	1	5.25	.022
Stable X Expec	1	.73	.373
Sex X Expec	1	5.06	.024
Outcome X Expec	1	8.29	.004
Age X Expec	1	4.49	.034
Stable	1	9.76	.002
Sex	1	7.13	.008
Outcome	1	.05	.825
Age	1	5.98	.015
Expec	1	76.02	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-25

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 5

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Outcome X Age	1	.42	.517
Stable X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Age X Expec	1	.00	1.000
Stable X Outcome X Age X Expec	1	.00	1.000
Sex X Outcome X Age X Expec	1	.00	1.000
Stable X Sex X Outcome	1	.96	.327
Stable X Sex X Age	1	.00	.997
Stable X Outcome X Age	1	.03	.855
Sex X Outcome X Age	1	.00	1.000
Stable X Sex X Expec	1	.00	1.000
Stable X Outcome X Expec	1	.03	.863
Sex X Outcome X Expec	1	.00	.985
Stable X Age X Expec	1	.03	.874
Sex X Age X Expec	1	.20	.659
Outcome X Age X Expec	1	.00	1.000
Stable X Sex	1	.00	1.000
Stable X Outcome	1	7.92	.005
Sex X Outcome	1	4.87	.027
Stable X Age	1	3.98	.046
Sex X Age	1	30.87	.000
Outcome X Age	1	33.67	.000
Stable X Expec	1	2.74	.098
Sex X Expec	1	1.88	.171
Outcome X Expec	1	8.17	.004
Age X Expec	1	1.32	.251
Stable	1	12.87	.000
Sex	1	.70	.404
Outcome	1	.70	.404
Age	1	42.52	.000
Expec	1	73.18	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-26

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 6

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.37	.545
Stable X Sex X Outcome X Age	1	.05	.832
Stable X Sex X Outcome X Expec	1	.02	.896
Stable X Sex X Age X Expec	1	.00	1.000
Stable X Outcome X Age X Expec	1	.04	.850
Sex X Outcome X Age X Expec	1	.04	.852
Stable X Sex X Outcome	1	.04	.852
Stable X Sex X Age	1	.06	.814
Stable X Outcome X Age	1	2.74	.098
Sex X Outcome X Age	1	36.37	.000
Stable X Sex X Expec	1	3.24	.072
Stable X Outcome X Expec	1	.02	.894
Sex X Outcome X Expec	1	.00	1.000
Stable X Age X Expec	1	.00	.958
Sex X Age X Expec	1	.03	.869
Outcome X Age X Expec	1	9.80	.002
Stable X Sex	1	5.85	.016
Stable X Outcome	1	.61	.434
Sex X Outcome	1	.19	.664
Stable X Age	1	.05	.832
Sex X Age	1	1.58	.209
Outcome X Age	1	8.11	.004
Stable X Expec	1	7.96	.005
Sex X Expec	1	1.29	.255
Outcome X Expe	1	8.55	.004
Age X Expec	1	5.52	.019
Stable	1	6.15	.013
Sex	1	.10	.748
Outcome	1	9.85	.002
Age	1	7.29	.007
Expec	1	43.84	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-27

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 7

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Outcome X Age	1	.48	.489
Stable X Sex X Outcome X Expec	1	.35	.556
Stable X Sex X Age X Expec	1	.00	1.000
Stable X Outcome X Age X Expec	1	.00	1.000
Sex X Outcome X Age X Expec	1	.00	.974
Stable X Sex X Outcome	1	6.15	.013
Stable X Sex X Age	1	14.19	.000
Stable X Outcome X Age	1	11.62	.001
Sex X Outcome X Age	1	.78	.376
Stable X Sex X Expec	1	.05	.817
Stable X Outcome X Expec	1	.01	.944
Sex X Outcome X Expec	1	.03	.865
Stable X Age X Expec	1	.00	.951
Sex X Age X Expec	1	.07	.793
Outcome X Age X Expec	1	.36	.547
Stable X Sex	1	8.29	.004
Stable X Outcome	1	17.39	.000
Sex X Outcome	1	3.51	.061
Stable X Age	1	.00	.961
Sex X Age	1	2.97	.085
Outcome X Age	1	1.32	.251
Stable X Expec	1	4.07	.044
Sex X Expec	1	1.41	.235
Outcome X Expec	1	15.74	.000
Age X Expec	1	13.50	.000
Stable	1	8.86	.003
Sex	1	.04	.833
Outcome	1	.40	.527
Age	1	6.48	.011
Expec	1	61.98	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-28

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 8

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Outcome X Age	1	.42	.520
Stable X Sex X Outcome X Expec	1	.00	.978
Stable X Sex X Age X Expec	1	.00	1.000
Stable X Outcome X Age X Expec	1	.00	1.000
Sex X Outcome X Age X Expec	1	.26	.612
Stable X Sex X Outcome	1	9.24	.002
Stable X Sex X Age	1	.00	1.000
Stable X Outcome X Age	1	.00	1.000
Sex X Outcome X Age	1	28.61	.000
Stable X Sex X Expec	1	.00	1.000
Stable X Outcome X Expec	1	.31	.581
Sex X Outcome X Expec	1	.02	.899
Stable X Age X Expec	1	.00	1.000
Sex X Age X Expec	1	.00	1.000
Outcome X Age X Expec	1	.82	.366
Stable X Sex	1	2.52	.112
Stable X Outcome	1	1.32	.251
Sex X Outcome	1	37.45	.000
Stable X Age	1	3.48	.062
Sex X Age	1	3.01	.083
Outcome X Age	1	5.44	.020
Stable X Expec	1	.22	.637
Sex X Expec	1	3.61	.057
Outcome X Expec	1	8.78	.003
Age X Expec	1	1.76	.185
Stable	1	26.53	.000
Sex	1	.52	.472
Outcome	1	5.62	.018
Age	1	9.00	.003
Expec	1	59.63	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-29

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 9

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.30	.584
Stable X Sex X Outcome X Age	1	.17	.681
Stable X Sex X Outcome X Expec	1	.15	.695
Stable X Sex X Age X Expec	1	.06	.807
Stable X Outcome X Age X Expec	1	.08	.774
Sex X Outcome X Age X Expec	1	.02	.890
Stable X Sex X Outcome	1	2.02	.155
Stable X Sex X Age	1	.01	.918
Stable X Outcome X Age	1	6.94	.009
Sex X Outcome X Age	1	11.62	.000
Stable X Sex X Expec	1	2.76	.097
Stable X Outcome X Expec	1	.00	1.000
Sex X Outcome X Expec	1	.02	.877
Stable X Age X Expec	1	.04	.837
Sex X Age X Expec	1	.02	.903
Outcome X Age X Expec	1	4.19	.041
Stable X Sex	1	.44	.507
Stable X Outcome	1	.93	.335
Sex X Outcome	1	5.75	.017
Stable X Age	1	.01	.908
Sex X Age	1	10.48	.001
Outcome X Age	1	.46	.497
Stable X Expec	1	.49	.484
Sex X Expec	1	.24	.622
Outcome X Expec	1	3.68	.055
Age X Expec	1	6.62	.010
Stable	1	7.84	.005
Sex	1	.31	.578
Outcome	1	9.18	.003
Age	1	2.79	.095
Expec	1	64.63	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Table D-30

Loglinear Analysis for the Relationship of Age, Sex, Outcome and Stability of Causal Attributions to Expectations for Future Performance - Game 10

Effect	df	Chi-square	p
Stable X Age X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Outcome X Age	1	.00	1.000
Stable X Sex X Outcome X Expec	1	.00	1.000
Stable X Sex X Age X Expec	1	.00	1.000
Stable X Outcome X Age X Expec	1	.00	1.000
Sex X Outcome X Age X Expec	1	.00	1.000
Stable X Sex X Outcome	1	.00	.996
Stable X Sex X Age	1	.00	1.000
Stable X Outcome X Age	1	.00	1.000
Sex X Outcome X Age	1	.46	.496
Stable X Sex X Expec	1	.00	1.000
Stable X Outcome X Expec	1	6.46	.011
Sex X Outcome X Expec	1	.00	.998
Stable X Age X Expec	1	.00	.993
Sex X Age X Expec	1	.30	.585
Outcome X Age X Expec	1	.00	1.000
Stable X Sex	1	.43	.513
Stable X Outcome	1	8.45	.004
Sex X Outcome	1	14.28	.000
Stable X Age	1	1.38	.240
Sex X Age	1	36.03	.000
Outcome X Age	1	9.91	.002
Stable X Expec	1	3.28	.070
Sex X Expec	1	.00	.975
Outcome X Expec	1	17.55	.000
Age X Expec	1	.05	.827
Stable	1	2.21	.138
Sex	1	6.98	.008
Outcome	1	11.20	.001
Age	1	8.27	.004
Expec	1	43.59	.000

Note. Expec = Expectations; Stable = Stability of Attributions

Appendix E

Crosstabulation Tables for the First Ten Games of the Season

Table E-1

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 1

Attribution Category		Win		Loss	
		Male	Female	Male	Female
ISU (Ability)	Young	---	10.0 (1)	---	---
	Old	---	---	---	---
IUU (Mood)	Young	---	---	---	33.3 (3)
	Old	15.4 (2)	---	17.1 (6)	38.9 (7)
ISC (Typical effort)	Young	30.8 (4)	30.0 (3)	---	---
	Old	46.2 (6)	15.4 (2)	---	---
IUC (Immediate effort)	Young	61.5 (8)	50.0 (5)	85.7 (12)	22.2 (2)
	Old	30.8 (4)	84.6 (11)	65.7 (23)	33.3 (6)
ESU (Task difficulty)	Young	---	---	7.1 (1)	44.4 (4)
	Old	---	---	---	5.6 (1)
EUU (Luck)	Young	7.7 (1)	10.0 (1)	7.1 (1)	---
	Old	7.7 (1)	---	17.1 (6)	22.2 (4)

Note. Frequencies in brackets

Table E-2

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 2

		Win		Loss	
Attribution Category		Male	Female	Male	Female
ISU (Ability)	Young	---	---	---	---
	Old	---	---	---	---
IUU (Mood)	Young	---	---	7.7 (1)	29.4 (5)
	Old	8.7 (2)	---	42.9 (6)	9.1 (1)
ISC (Typical effort)	Young	100.0 (1)	11.1 (1)	---	---
	Old	43.5 (10)	4.5 (1)	---	---
IUC (Immediate effort)	Young	---	88.9 (8)	69.2 (9)	41.2 (7)
	Old	47.8 (11)	95.5 (21)	28.6 (4)	81.8 (9)
ESU (Task difficulty)	Young	---	---	23.1 (3)	29.4 (5)
	Old	---	---	14.3 (2)	9.1 (1)
EUU (Luck)	Young	---	---	---	---
	Old	---	---	14.3 (2)	---

Note. Frequencies in brackets

Table E-3

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 3

Attribution Category		Win		Loss	
		Male	Female	Male	Female
ISU (Ability)	Young	---	---	---	---
	Old	---	---	---	---
IUU (Mood)	Young	---	---	12.5 (2)	50.0 (7)
	Old	---	8.7 (2)	30.8 (4)	41.7 (5)
ISC (Typical effort)	Young	---	37.5 (3)	---	---
	Old	30.0 (3)	13.0 (3)	---	---
IUC (Immediate effort)	Young	---	25.0 (2)	68.8 (11)	14.3 (2)
	Old	70.0 (7)	65.2 (15)	53.8 (7)	41.7 (5)
ESU (Task difficulty)	Young	---	---	12.5 (2)	35.7 (5)
	Old	---	8.7 (2)	---	16.7 (2)
EUU (Luck)	Young	---	37.5 (3)	6.3 (1)	---
	Old	---	4.3 (1)	15.4 (2)	---

Note. Frequencies in brackets

Table E-4

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 4

Attribution Category		Win		Loss	
		Male	Female	Male	Female
ISU (Ability)	Young	---	20.0 (2)	---	---
	Old	---	---	4.5 (1)	---
IUU (Mood)	Young	---	---	45.4 (5)	75.0 (6)
	Old	4.5 (1)	---	31.8 (7)	75.0 (3)
ISC (Typical effort)	Young	50.0 (1)	20.0 (2)	---	---
	Old	72.7 (16)	12.5 (1)	---	---
IUC (Immediate effort)	Young	50.0 (1)	50.0 (5)	36.4 (4)	25.0 (2)
	Old	18.2 (4)	75.0 (6)	50.0 (11)	---
ESU (Task difficulty)	Young	---	---	9.1 (1)	---
	Old	---	12.5 (1)	13.6 (3)	---
EUU (Luck)	Young	---	10.0 (1)	9.1 (1)	---
	Old	4.5 (1)	---	---	25.0 (1)

Note. Frequencies in brackets

Table E-5

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 5

		Win		Loss	
Attribution Category		Male	Female	Male	Female
ISU (Ability)	Young	---	---	---	---
	Old	---	---	5.0 (1)	---
IUU (Mood)	Young	---	---	---	23.5 (4)
	Old	9.1 (2)	7.1 (2)	20.0 (4)	33.3 (2)
ISC (Typical effort)	Young	100.0 (1)	---	---	---
	Old	36.4 (8)	32.1 (9)	---	---
IUC (Immediate effort)	Young	---	---	---	29.4 (5)
	Old	54.5 (12)	53.6 (15)	55.0 (11)	33.3 (2)
ESU (Task difficulty)	Young	---	---	---	41.2 (7)
	Old	---	7.1 (2)	10.0 (2)	---
EUU (Luck)	Young	---	---	---	5.9 (1)
	Old	---	---	10.0 (2)	33.3 (2)

Note. Frequencies in brackets

Table E-6

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 6

Attribution Category		Win		Loss	
		Male	Female	Male	Female
ISU (Ability)	Young	---	---	---	---
	Old	---	---	---	---
IUU (Mood)	Young	---	9.1 (1)	25.0 (3)	20.0 (2)
	Old	---	---	---	11.1 (1)
ISC (Typical effort)	Young	---	9.1 (1)	8.3 (1)	---
	Old	53.1 (17)	12.5 (2)	---	---
IUC (Immediate effort)	Young	---	72.7 (8)	41.7 (5)	---
	Old	31.3 (10)	87.5 (14)	---	66.7 (6)
ESU (Task difficulty)	Young	---	9.1 (1)	25.0 (3)	70.0 (7)
	Old	---	---	---	11.1 (1)
EUU (Luck)	Young	---	---	---	10.0 (1)
	Old	15.6 (5)	---	---	11.1 (1)

Note. Frequencies in brackets

Table E-7

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 7

		Win		Loss	
Attribution Category		Male	Female	Male	Female
ISU (Ability)	Young	---	15.4 (2)	---	---
	Old	---	---	---	---
IUU (Mood)	Young	20.0 (1)	15.4 (2)	14.3 (1)	66.7 (6)
	Old	5.9 (1)	---	27.3 (6)	45.5 (5)
ISC (Typical effort)	Young	---	38.4 (5)	---	---
	Old.	82.4 (14)	21.4 (3)	4.5 (1)	---
IUC (Immediate effort)	Young	80.0 (4)	30.8 (4)	---	11.1 (1)
	Old	11.8 (2)	78.6 (11)	50.0 (11)	54.5 (6)
ESU (Task difficulty)	Young	---	---	71.4 (5)	11.1 (1)
	Old	---	---	13.6 (3)	---
EUU (Luck)	Young	---	---	14.3 (1)	11.1 (1)
	Old	---	---	4.5 (1)	---

Note. Frequencies in brackets

Table E-8

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 8

Attribution Category		Win		Loss	
		Male	Female	Male	Female
ISU (Ability)	Young	---	---	---	---
	Old	---	---	---	---
IUU (Mood)	Young	---	---	20.0 (2)	14.3 (2)
	Old	---	---	18.4 (7)	---
ISC (Typical effort)	Young	66.7 (4)	20.0 (1)	---	---
	Old	100.0 (1)	26.9 (7)	---	---
IUC (Immediate effort)	Young	16.7 (1)	80.0 (4)	70.0 (7)	28.6 (4)
	Old	---	65.4 (17)	68.4 (26)	---
ESU (Task difficulty)	Young	---	---	---	57.1 (8)
	Old	---	3.8 (1)	7.9 (3)	---
EUU (Luck)	Young	16.7 (1)	---	10.0 (1)	---
	Old	---	3.8 (1)	5.3 (1)	---

Note. Frequencies in brackets

Table E-9

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 9

Attribution Category		Win		Loss	
		Male	Female	Male	Female
ISU (Ability)	Young	---	7.1 (1)	---	---
	Old	---	---	---	---
IUU (Mood)	Young	14.3 (1)	7.1 (1)	25.0 (1)	50.0 (4)
	Old	21.1 (4)	12.5 (2)	43.8 (7)	---
ISC (Typical effort)	Young	28.6 (2)	14.3 (2)	---	---
	Old	52.6 (10)	37.5 (6)	---	---
IUC (Immediate effort)	Young	42.9 (3)	71.4 (10)	---	12.5 (1)
	Old	26.3 (5)	50.0 (8)	18.8 (3)	---
ESU (Task difficulty)	Young	---	---	75.0 (3)	37.5 (3)
	Old	---	---	12.5 (2)	---
EUU (Luck)	Young	14.3 (1)	---	---	---
	Old	---	---	25.0 (4)	---

Note. Frequencies in brackets

Table E-10

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations - Game 10

Attribution Category		Win		Loss	
		Male	Female	Male	Female
ISU (Ability)	Young	---	20.0 (3)	---	---
	Old	---	---	---	---
IUU (Mood)	Young	---	---	20.0 (1)	40.0 (4)
	Old	15.4 (2)	4.0 (1)	11.8 (2)	---
ISC (Typical effort)	Young	---	20.0 (3)	---	---
	Old	46.2 (6)	52.0 (13)	---	---
IUC (Immediate effort)	Young	---	46.7 (7)	20.0 (1)	20.0 (2)
	Old	38.5 (5)	32.0 (8)	23.5 (4)	---
ESU (Task difficulty)	Young	---	6.7 (1)	---	10.0 (1)
	Old	---	8.0 (2)	17.6 (3)	---
EUU (Luck)	Young	---	6.7 (1)	60.0 (3)	30.0 (3)
	Old	---	4.0 (1)	47.1 (8)	---

Note. Frequencies in brackets

Table E-11

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 1

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	30.8 (4)	40.0 (4)	---	---
	Old	46.2 (6)	15.4 (2)	---	---
Internal, unstable (Effort)	Young	61.5 (8)	50.0 (5)	85.7 (12)	55.6 (5)
	Old	46.2 (6)	84.6 (11)	82.9 (29)	72.2 (13)
External, stable (Task difficulty)	Young	---	---	7.1 (1)	44.4 (4)
	Old	---	---	---	5.6 (1)
External, unstable (Luck)	Young	7.7 (1)	10.0 (1)	7.1 (1)	---
	Old	7.7 (1)	---	17.1 (6)	22.2 (4)

Note. Frequencies in brackets

Table E-12

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 2

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	100.0 (1)	11.1 (1)	---	---
	Old	43.5 (10)	4.5 (1)	---	---
Internal, unstable (Effort)	Young	---	88.9 (8)	76.9 (10)	70.6 (12)
	Old	56.5 (13)	95.5 (21)	71.4 (10)	90.9 (10)
External, stable (Task difficulty)	Young	---	---	23.1 (3)	29.4 (5)
	Old	---	---	14.3 (2)	9.1 (1)
External, unstable (Luck)	Young	---	---	---	---
	Old	---	---	14.3 (2)	---

Note. Frequencies in brackets

Table E-13

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 3

		Win		Loss	
Attribution Category		Male	Female	Male	Female
Internal, stable (Ability)	Young	---	37.5 (3)	---	---
	Old	30.0 (3)	13.0 (3)	---	---
Internal, unstable (Effort)	Young	---	37.5 (3)	81.3 (13)	50.0 (7)
	Old	70.0 (7)	73.9 (17)	84.6 (11)	83.3 (10)
External, stable (Task difficulty)	Young	---	---	12.5 (2)	35.7 (5)
	Old	---	8.7 (2)	---	16.7 (2)
External, unstable (Luck)	Young	---	37.5 (3)	6.3 (1)	---
	Old	---	4.3 (1)	15.4 (2)	---

Note. Frequencies in brackets

Table E-14

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 4

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	50.0 (1)	40.0 (4)	---	---
	Old	72.7 (16)	12.5 (1)	4.5 (1)	---
Internal, unstable (Effort)	Young	50.0 (1)	50.0 (5)	81.8 (9)	100.0 (8)
	Old	22.7 (5)	75.0 (6)	81.8 (18)	75.0 (3)
External, stable (Task difficulty)	Young	---	---	9.1 (1)	---
	Old	---	12.5 (1)	13.6 (3)	---
External, unstable (Luck)	Young	---	10.0 (1)	9.1 (1)	---
	Old	4.5 (1)	---	---	25.0 (1)

Note. Frequencies in brackets

Table E-15

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 5

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	100.0 (1)	---	---	---
	Old	36.4 (8)	32.1 (9)	5.0 (1)	---
Internal, unstable (Effort)	Young	---	---	---	52.9 (9)
	Old	63.6 (14)	60.7 (17)	75.0 (15)	66.7 (4)
External, stable (Task difficulty)	Young	---	---	---	41.2 (7)
	Old	---	7.1 (2)	10.0 (2)	---
External, unstable (Luck)	Young	---	---	---	5.9 (1)
	Old	---	---	10.0 (2)	33.3 (2)

Note. Frequencies in brackets

Table E-16

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 6

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	---	9.1 (1)	8.3 (1)	---
	Old	53.1 (17)	12.5 (2)	---	---
Internal, unstable (Effort)	Young	---	81.8 (9)	66.7 (8)	20.0 (2)
	Old	31.3 (10)	87.5 (14)	---	77.8 (7)
External, stable (Task difficulty)	Young	---	9.1 (1)	25.0 (3)	70.0 (7)
	Old	---	---	---	11.1 (1)
External, unstable (Luck)	Young	---	---	---	10.0 (1)
	Old	15.6 (5)	---	---	11.1 (1)

Note. Frequencies in brackets

Table E-17

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 7

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	---	53.8 (7)	---	---
	Old	82.4 (14)	21.4 (3)	4.5 (1)	---
Internal, unstable (Effort)	Young	100.0 (5)	46.2 (6)	14.3 (1)	77.8 (7)
	Old	17.6 (3)	78.6 (11)	77.3 (17)	100.0 (11)
External, stable (Task difficulty)	Young	---	---	71.4 (5)	11.1 (1)
	Old	---	---	13.6 (3)	---
External, unstable (Luck)	Young	---	---	14.3 (1)	11.1 (1)
	Old	---	---	4.5 (1)	---

Note. Frequencies in brackets

Table E-18

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 8

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	66.7 (4)	20.0 (1)	---	---
	Old	100.0 (1)	26.9 (7)	---	---
Internal, unstable (Effort)	Young	16.7 (1)	80.0 (4)	90.0 (9)	42.9 (6)
	Old	---	65.4 (17)	86.8 (33)	---
External, stable (Task difficulty)	Young	---	---	---	57.1 (8)
	Old	---	3.8 (1)	7.9 (3)	---
External, unstable (Luck)	Young	16.7 (1)	---	10.0 (1)	---
	Old	---	3.8 (1)	5.3 (2)	---

Note. Frequencies in brackets

Table E-19

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 9

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	28.6 (2)	21.4 (3)	---	---
	Old	52.6 (10)	37.5 (6)	---	---
Internal, unstable (Effort)	Young	57.1 (4)	78.6 (11)	25.0 (1)	62.5 (5)
	Old	47.4 (9)	62.5 (10)	62.5 (10)	---
External, stable (Task difficulty)	Young	---	---	75.0 (3)	37.5 (3)
	Old	---	---	12.5 (2)	---
External, unstable (Luck)	Young	14.3 (1)	---	---	---
	Old	---	---	25.0 (4)	---

Note. Frequencies in brackets

Table E-20

Percent Responses of Attribution X Age X Sex X Outcome Crosstabulations (Two-Dimensional Model) - Game 10

Attribution Category		Win		Loss	
		Male	Female	Male	Female
Internal, stable (Ability)	Young	---	40.0 (6)	---	---
	Old	46.2 (6)	52.0 (13)	---	---
Internal, unstable (Effort)	Young	---	46.7 (7)	40.0 (2)	60.0 (6)
	Old	53.8 (7)	36.0 (9)	35.3 (6)	---
External, stable (Task difficulty)	Young	---	6.7 (1)	---	10.0 (1)
	Old	---	8.0 (2)	17.6 (3)	---
External, unstable (Luck)	Young	---	6.7 (1)	60.0 (3)	30.0 (3)
	Old	---	4.0 (1)	47.1 (8)	---

Note. Frequencies in brackets